MAY 26, 1958

STEEL
The Metalworking Weekly

Depreciation Reform in '58?

Chances fairly good for Congressional action this summer
—*Page 62*

Equipment Price Stability To Hold

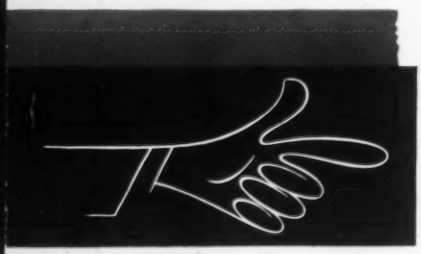
Costs rise but weak demand forces most builders to hold line
—*Page 68*

How Positioning Ups Profits

Welders learn how to turn 'tilt' into faster production
—*Page 104*

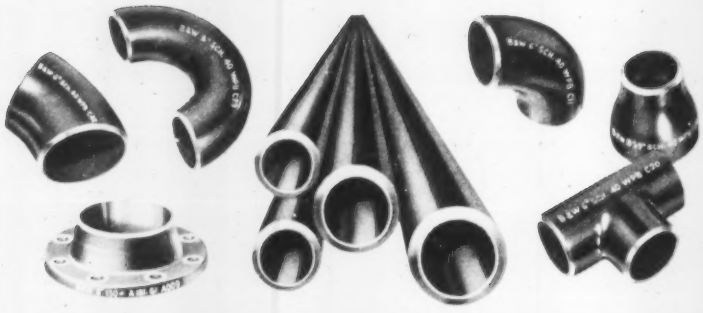
Better Packaging Layout Pays Off

Cost crisis problem led to a $33,000 annual saving
—*Page 100*



Stainless Outlook Brightens a Bit

Volume edges up now, may jump if auto sales improve
—*Page 151*



"B&W's Mr. Tubes gives me the 'extra' help I need to engineer for profit!"

YOU can ENGINEER FOR PROFIT by keeping your piping costs as realistic as possible. Specifying and buying welding fittings and pipe, especially the alloys, can be pretty tricky. Admittedly, most alloy jobs are, inherently, both complex and expensive. Any error in judgment can throw costs way out of proportion. That's why it pays to call in B&W's Mr. Tubes. Put him on your planning team . . . he's the man that can help make your specifying decisions more certain.

As your local B&W representative, Mr. Tubes is well qualified to give you the kind of technical help you need to hold your alloy piping costs to a minimum. He can offer dependable help in selecting the most economical grades and sizes best suited for your end-use applications.

And, through Mr. Tubes, you can save both time and money by utilizing B&W's "one-source" supply. You get a matched piping system — both pipe *and* fittings, in the materials you need — when you need them. Buying and delivery are more closely controlled, too. Check with Mr. Tubes on your next job. He can be reached at any B&W Tubular Products Division District Sales Office. The Babcock & Wilcox Company, Tubular Products Division, Beaver Falls, Pennsylvania.

B&W

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TA 8032 G5

Seamless and welding fittings and forged steel flanges, seamless and welded tubular products, tube extrusions — in carbon, alloy, stainless steels and special metals

They've Cleared the Last Hurdle

Here are some Bethlehem drop forgings just about ready for shipment. That signed and dated tag means that they have taken the last of many hurdles. They've survived every check-up and inspection.

Matter of fact, the check-ups began even before there *were* any forgings. The steel was subjected to thorough metallurgical analysis long before it reached the forging hammers. Then, at every step along the route, the job received another careful going-over. Finally, after hardness tests, dimensional checks, and surface inspection, the finished drop forgings rated the "Passed Inspection" tag.

Every order of Bethlehem drop forgings must run this kind of obstacle race and clear every prescribed check-point. It is the customer's assurance of quality workmanship; an assurance of forgings he can accept and use with confidence.

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On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL

Just saved: 61 separate drilling operations—and not a single tolerance needs checking

Dimensions and placement of everyone of the 63 holes in this Cleaver Brooks boiler door must be right on the nose. Tolerances of the dished stamping—plus or minus 1/16" on both the 60" diameter and flatness across the flange—must be held even *after* the holes are pierced.

COMMERCIAL meets all of these exacting requirements. It designed and turned out the forming and piercing dies, forms the heavy stampings and gang pierces the holes. And it's the same story all the way with the 36" and 48" diameter dished boiler doors COMMERCIAL also manufactures for Cleaver Brooks.

Only the first gang-pierced boiler door requires a tolerance inspection. After that, as in the case of the 60" diameter stamped door, it's 63 holes at one crack—all with identical, near-perfect size and location tolerances every time. And at no time do the actual stampings go beyond the limits of their specified plus or minus 1/16" tolerances.

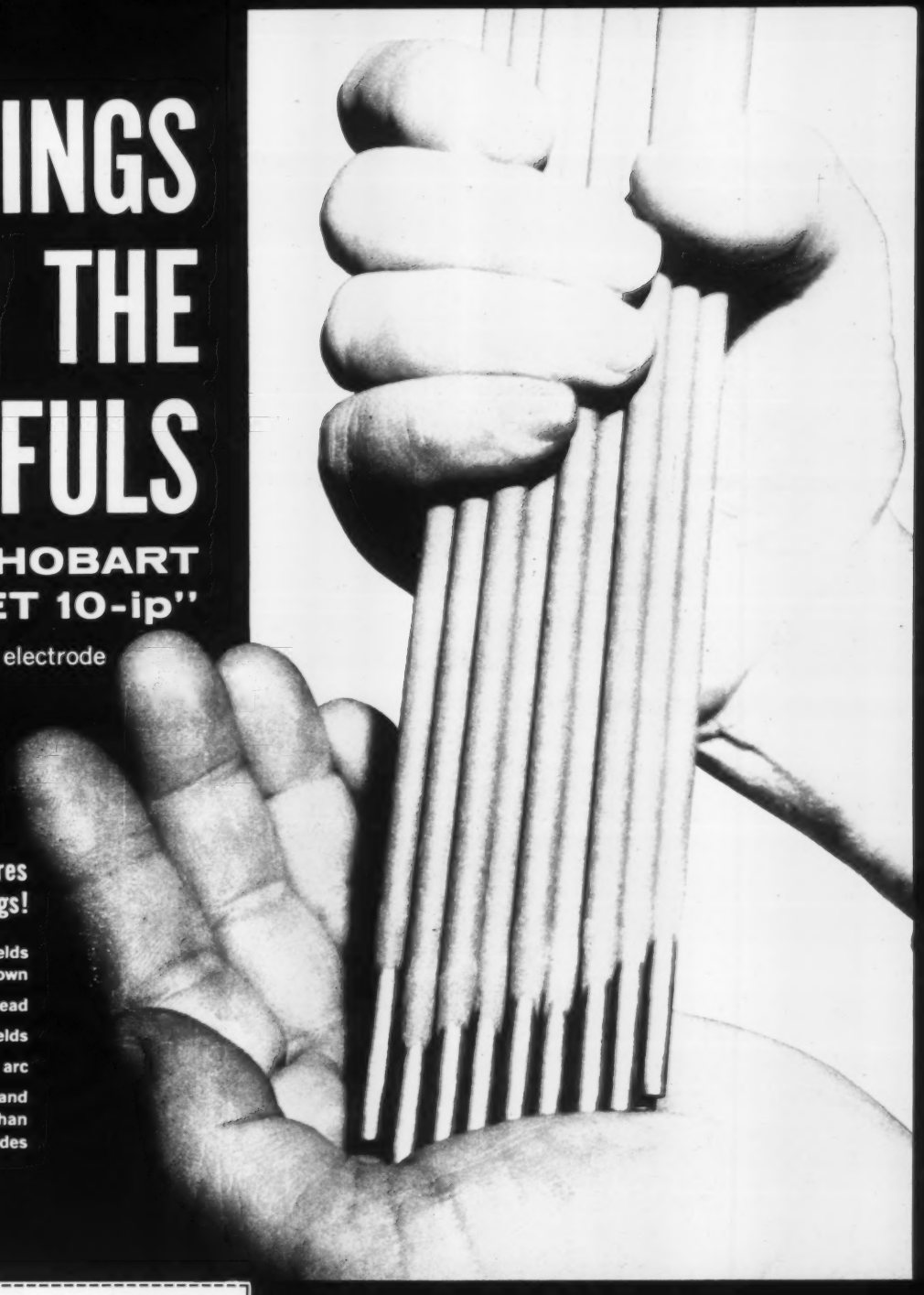
Here's the kind of accurate, cost-saving metal forming service you may want to consider the next time you're in the market for a medium or heavy stamping—long or short run. Just send along a blueprint or complete information on your requirements. Our engineers will cooperate fully. Address Commercial Shearing & Stamping Company, Department L-22, Youngstown 1, Ohio.

COMMERCIAL SHEARING & STAMPING

$AVINGS BY THE HANDFULS

...with the new **HOBART "ROCKET 10-ip"**

E-6010 iron powder electrode



These quality features add up to big savings!

- porosity free welds on Vertical Down
- flat bead
- X-ray quality welds
- smoother arc
- drag or free arc technique and yet costs no more than ordinary E-6010 electrodes

HOBART BROTHERS CO., BOX ST-58, TROY, OHIO

☐ Yes, I'd be interested in trying this new "Rocket 10-ip" Welding Electrode.

Also send me information on _____

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Name _____

Firm _____

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HOBART "ROCKET 10-ip"— new IRON POWDER dc electrode for mild steel greatly simplifies "difficult position" welding. You'll like its fine quality, great speed and economy . . . try it.

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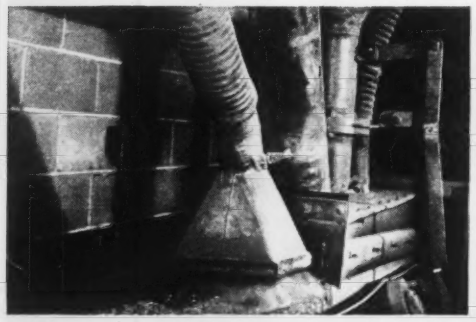
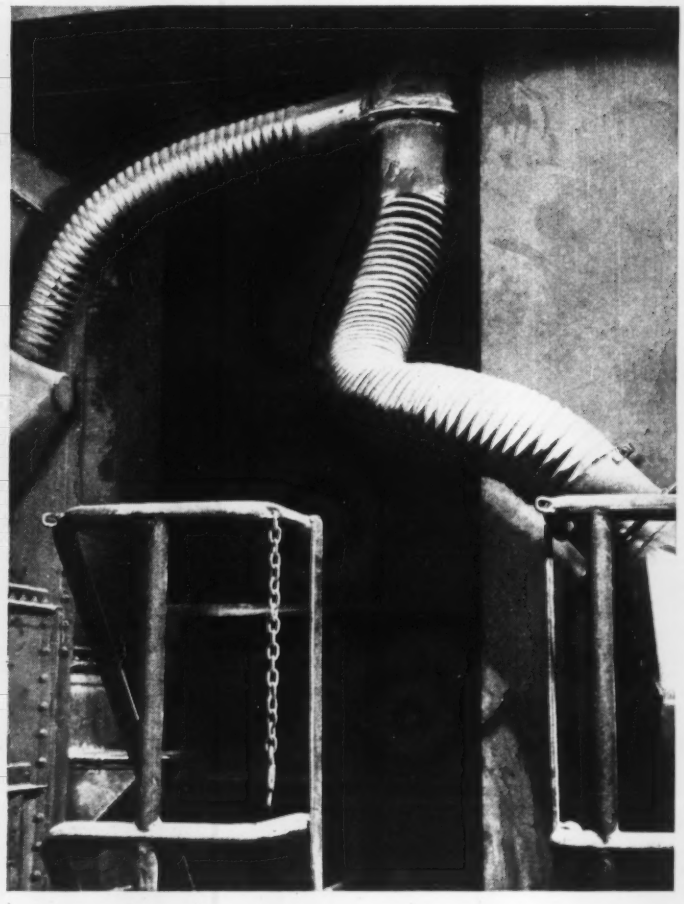
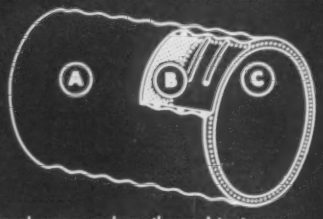




GOODYEAR INDUSTRIAL PRODUCTS

GTM-Specified

HD Industrial Vacuum Hose for conducting abrasive dust or acid fumes



A Tough wear- and weather-resistant cover

B Reinforcement of sturdy wrapped fabric plus helix of flat steel wire prevents kinking and collapsing

C Smooth rubber tube resists attack of abrasive particles or corrosive fumes

Hose at one-third the cost outlasts pipe—4 to 1

Carrying off large quantities of abrasive dust had always been an expensive problem at this Northwestern plant. For it quickly ate through heavy-gauge pipe—especially where the ducts had to make sharp turns. In fact, 8 to 10 months was the limit for any pipe they tried.

But the G.T.M.—Goodyear Technical Man—figured he could top that with HD Industrial Vacuum Hose. It not only cost much less than the special pipe, but could be installed far more quickly and easily. And when worn, it could be rotated to distribute wear. But here's the real pay-off: at last report, *the G.T.M.'s hose was still going strong after 3 years' service.*

What about production-line problems swelling *your* costs – and eating *your* profits? You can't lose by turning the G.T.M. loose on them – whenever they involve industrial rubber problems. You can reach him through your Goodyear Distributor – or by writing:

Goodyear, Industrial Products Division,
Akron 16, Ohio

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IT'S SMART TO DO BUSINESS *with your Goodyear Distributor. He can give you fast, dependable service on Hose, V-Belts, Flat Belts and many other industrial rubber and nonrubber supplies. Look for him in the Yellow Pages under "Rubber Goods" or "Rubber Products."*

This Week in STEEL The Metalworking Weekly

May 26, 1958
Vol. 142 No. 21

EDITORIAL 55

We need your help to make congressmen understand the need for revision of our laws on depreciation.

SPECIAL FEATURE 62

REP. WILBUR D. MILLS

Chances are fairly good that Congress will take some action on depreciation at this session. The House Ways & Means Committee, headed by Representative Mills, is expected to start considering revisions the week of June 2.

WINDOWS OF WASHINGTON 64

Distress over Venezuela's riotous reception of Nixon may bring three-point economic program for Latins.

MIRRORS OF MOTORDOM 71

Motordom is trying to meet buyers' demands for economy cars without slashing the big car markets.

THE BUSINESS TREND 75

STEEL's industrial production index at highest point in seven weeks.

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Index available semiannually. STEEL is also indexed by Engineering Index, 29 W. 39th St., New York 18, N. Y.

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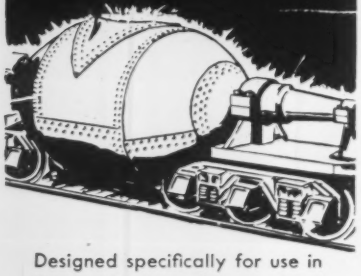

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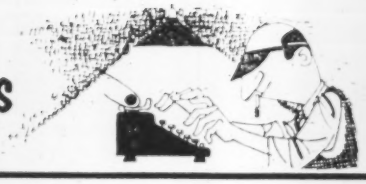

Now Hear This

Thinking is still being done in America—good, sound, constructive thinking, too. Our only complaint is that these thoughts are circulated where they are already accepted, instead of where they will do the most good. For an instance, as we used to say in the hills, Charles M. White, chairman, Republic Steel Corp., got off some potent remarks before the AIME at Cleveland recently. He spoke about the appalling number of delusions held by an appalling number of persons: Delusions that bigness is badness; that corporate profits are bad; that dividends are unearned; that only the workingman increases productivity; that the laboring man is underpaid; that unions are weak; that machines are a threat; that one can get something for nothing; that America cannot be surpassed.

E. S. Bowerfind, director of public relations at Republic, was kind enough to send us a copy of Mr. White's address following a hint in this column. The problem now is, how can Mr. White's thoughtful analyses be circulated among the deluded?

Test Backfires

How are we going to plant these thoughts in the minds of housewives, painters, professors, doctors, fiddle players, crapshooters, college students, and average voters? How can we reach the American mind and devise a test to determine its ability to evaluate? This suddenly reminds us of Associate Copy Editor Glenn Dietrich—and it's fortunate, too, because we have been straying into deep water, and ol' Shrdlu is far from being 10 ft tall, mentally or physically. When Glenn was considered for the job, the editors of STEEL cooked up a sample news story, and purposely sprinkled it with 33 errors. Glenn took the test, found the planted errors, and revealed three additional ones! Naturally, he got the job.

Copy Editor Harry Chandler later compiled an editing test, a 28-line story containing 36 errors. Editors who volunteered to take the test were allowed to grade themselves, so, judging by the glum expressions following exposure to Chandler's fiendish exam, all scores will go separately to the grave. Ol' Shrdlu caught about three mistakes, so there is a strong possibility that he will revert to his old job of window washer, second class.

An Index Is Born

Last week STEEL's Market Outlook page assumed a new look. Neatly boxed in the lower right corner an index to markets and prices appeared. This index will become a permanent fixture. Associate Editor Frank Briggs was the accoucheur, so we asked him about his baby.

"Mr. Briggs, is it true that you assembled the markets and prices index? Won't it be a little difficult to list page numbers in advance? Suppose they run a story on structurals at the last minute. How are you going to hold the presses while you are listing the page number in your private index?"

Mr. Briggs smiled tolerantly. He has been with STEEL many years, and in the course of his long and honorable association, he had listened to many silly questions.

"The form containing the Market Outlook," he explained patiently, "goes on the press at 1 p.m. I simply go down at 11, check the new stories and prices, and mark the page numbers across from the proper items."

"And then what?"

"Then I have the type set," said Frank. "Don't you think that's a good idea?"

We were forced to admit that it was an excellent idea. His logic was stupendous.

"The type is still warm when we drop it in the waiting slot," continued Briggs, "and that's all there's to it. I usually go out and eat lunch after the form goes off."

Possibly strip steak with scraps, served on plates, and washed down by Coke.

Over Muscovite Copy Desk

Contestants who have requested entry blanks in STEEL's Cost Crisis Contest are urged to send in their completed forms as soon as possible. The deadline is June 15, and everybody knows how time flies, or fugits, or something like that. And while you're writing, for relaxation play with this:

Here is an imaginary story; we want you to write a headline for it, using five words, going from one to five syllables, and using the letter S to begin the first word, T the second, F the third, F the fourth, and I the fifth. (Example: Six Tes-ty Ed-i-tors E-rad-i-cate Lex-i-col-o-gist.) The story: It seems that a large but definite number of Russians, all of whom were skillful and prudent in matters of expenditure, were made lawfully correct and legally respectable at a mass ceremonial.

Now, write that headline!

Shrdlu

(Metalworking Outlook—Page 51)

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In buying power industrial trucks, look beyond initial costs—and you'll discover these overwhelming advantages of ELPAR electric trucks:

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Messer *has* this experience. Messer engineering has designed and installed over a thousand oxygen-producing plants all over the world—183 in the United States alone. Get an unbiased, authoritative analysis of your oxygen - nitrogen - argon requirements from American Messer.

WRITE FOR INFORMATION

We'd be happy to answer any questions you may have regarding the production of oxygen. No obligation, of course. Just write

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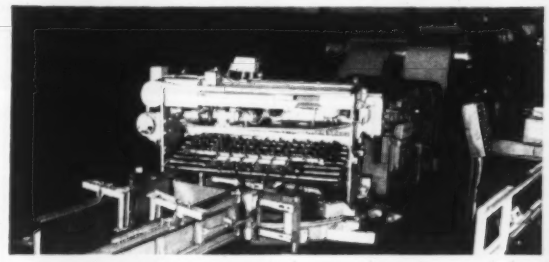
Cincinnati Shear swivels for mitre cuts at Budd



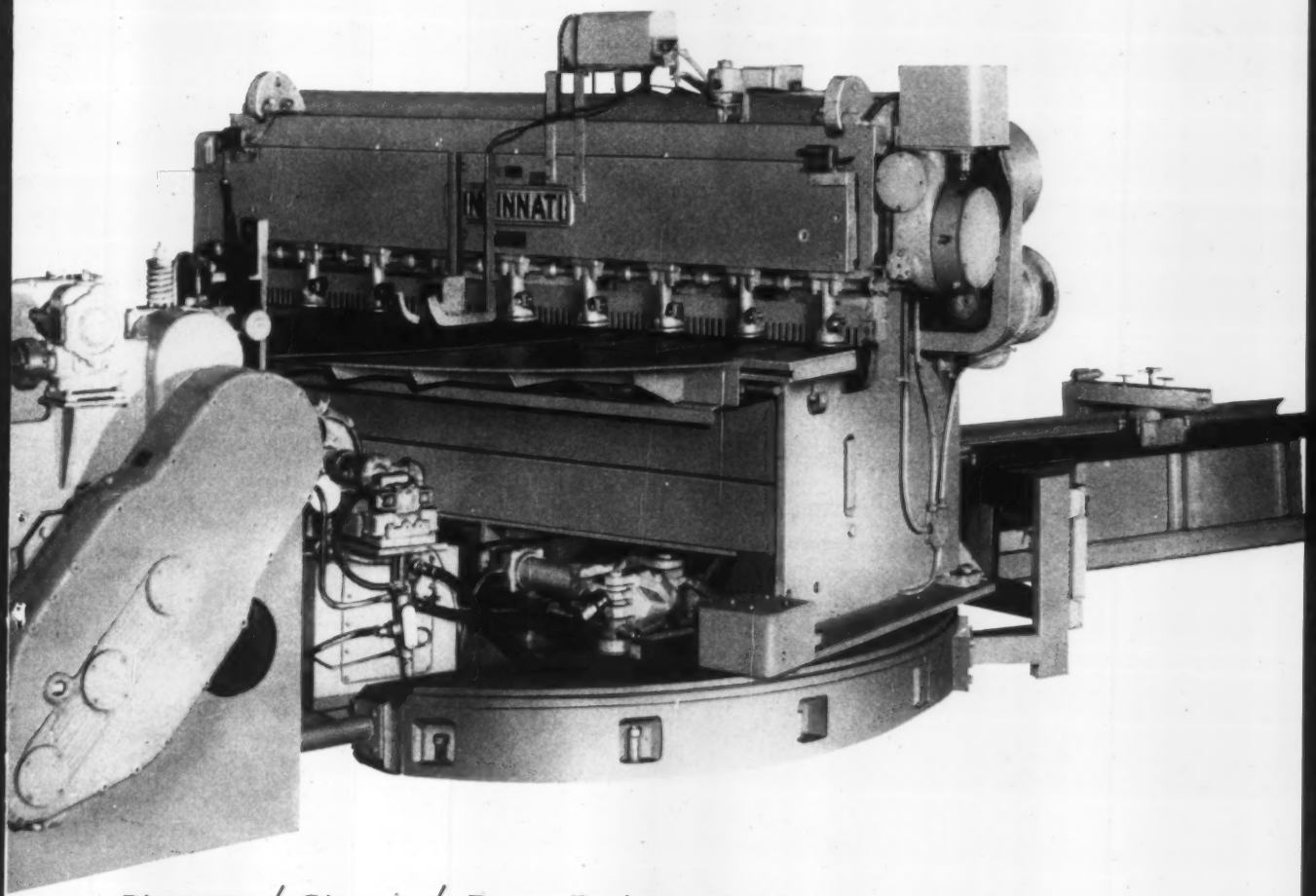
This Cincinnati Shear is an integral part of an automatic decoil and shear line at The Budd Company's Gary, Ind., plant. It is used for straight and mitre shearing of coil stock into sheets.

Mounted on a swiveling base, the shear can be rotated 22½° to either side of center, so the operator can pre-set the desired angle of cut.

Accuracy must be within ⅛" per 80" of feed. Sheet widths range from 24" to 72" and thickness from 21 to 16 gauge (.0349" to .0625"). Since the operation must be automatic and continuous to be economical, Cincinnati dependability is a vital asset.

This shear was specially engineered for The Budd Company. However, most of its profitable features are available with standard Cincinnati Shears. They include powerful hydraulic hold-downs, all-steel interlocked construction, and one-clearance shearing of different metal thicknesses.

Complete details on Cincinnati All-Steel Shears are included in Catalog S-7R. Write to Dept. C.



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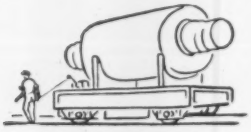
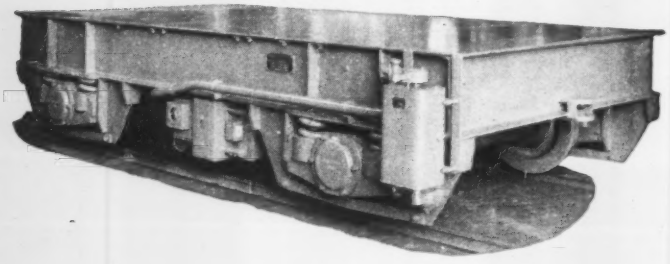


Atlas Safety-Type Transfer Cars are outstanding for moving heavy materials over short distances. Designed for storage battery, diesel or gas-electric, or cable reel service. Only one simplified control lever for safety. The car moves only when the operator holds the lever.



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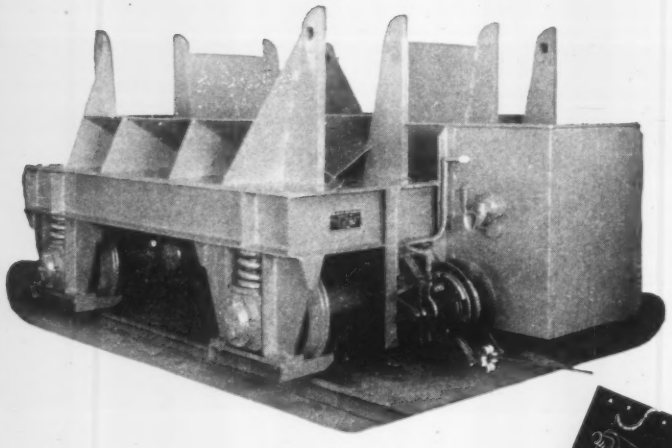

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LETTERS
TO THE EDITORS

Continued Quality in STEEL

Again I write to ask for extra copies of articles which I have read in STEEL. It seems that in almost every issue there are articles on timely subjects which we feel should be given to more than one person in our company for reference.

We would like two copies of your editorial, "Fight on Recession" (Page 55) and the article, "Let's Leap to Recovery with Bold Action on Depreciation" (Page 56), in your Apr. 28 issue.

Harold E. Hollberg
Assistant Plant Manager
Magnus Chemical Co. Inc.
Garwood, N. J.

Progressive Thinking

If you can spare four copies of the article, "Preview of Space Age Metals" (May 5, Page 86), I would appreciate them. This presentation shows the progressive thinking which we have come to consider typical of STEEL.

F. R. Norton
Metallurgical Engineer
Perry Kilsby Inc.
Los Angeles

Seeks Escape from Fringes

Kindly forward three copies of your thought-inspiring article, "Check Your Fringe Costs" (May 5, Page 62).

B. J. Abendschein
Chisholm-Ryder Co. of Pennsylvania
Hanover, Pa.

World Steelmaking Comparison

You published an excellent article in your Progress in Steelmaking series, "Balance of Steel Power Shifts" (May 5, Page 92). May we please have a copy?

T. H. Bloodworth
Chief Systems Engineer
Electrical Application Dept.
Industrial Equipment Div.
Allis-Chalmers Mfg. Co.
Milwaukee

Reading Tailored to Job

Magazine fare, as you know, is tailored to one's job. It was with distinct pleasure that I read the Program for Management article, "Managing Defensework for Profit" (Apr. 14, Page 125). I still have and quite frequently use the management series of 1953 and 1954 for many prac-

(Please turn to Page 12)

"The Board balked at first...

but I convinced them that now was a good time to buy!"

When machine tool builders work with smaller backlogs they're naturally more efficient and can make better deliveries... are more able to control costs ...more able to render the many *extra* custom engineering services that disrupt regular production during peak schedules. As a matter of fact, many progressive buyers are at their busiest now... taking advantage of the sound buying position the economy gives them as it pauses for its breath... seizing the opportunity to get ready for tomorrow today.

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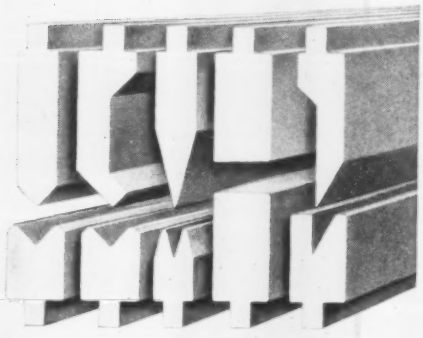


CHICAGO®
*Induction Hardened** PRESS BRAKE DIES

This organization of local distributors offers immediate delivery on many CHICAGO *induction hardened* press brake dies. These stock dies are economical, and the quick delivery saves time in tooling. They are available in any length from 4 to 12 feet in increments of 2 feet.

Stock dies are used for a surprisingly large variety of bending operations. And, with CHICAGO *induction hardened* dies you get bonus performance and increased die life at no extra cost. Remember, these dies can be used in any make or size of standard press brake.

On your needs for press brake dies, call your nearest distributor listed here. With Bulletin D-457 you can order by number. Ask for a copy.

*Induction hardening is a special, high-frequency process used to harden the wear surfaces of CHICAGO dies. Field reports on CHICAGO *induction hardened* dies show up to ten times longer life than conventional press brake dies.

CHICAGO DREIS & KRUMP

Press Brakes, Press Brake Dies
Straight-Side-Type Presses
Hand and Power Bending Brakes
Special Metal-Forming Machines

DREIS & KRUMP
MANUFACTURING CO.
7458 South Loomis Boulevard
Chicago 36, Illinois

LETTERS

(Concluded from Page 10)

tical applications. I have found them well written, completely understandable, and invaluable. I would appreciate being brought up to date for the years 1955, 1956, 1957, and the articles published to date this year.

Barry D. Diamond
Manager, Production Planning Dept.
Production Div.
Radiation Inc.
Melbourne, Fla.

Tool Guide: Wonderful Service

You have done a wonderful service for your readers by publishing "A Guide to Tool Steels & Carbides" (Apr. 21). This is an item that we have been wanting for a considerable time and one which will be of great assistance to us. We would appreciate six copies.

L. F. Loehr
Manager, Purchases & Stores
Security Engineering Div.
Dresser Operations Inc.
Dallas

Magazine Disappears

A few months ago, there was an excellent article in STEEL discussing the number of sales representatives a manufacturer should employ. I wanted to circulate this article but, unfortunately, the magazine disappeared. Would it be possible to obtain three tearsheets?

F. S. Merchant
Standards Engineer
Dexter Co.
Division of Miehle-Goss-Dexter Inc.
Pearl River, N. Y.

• *We are forwarding three copies of "Have Enough Salesmen?" from our Dec. 30, 1957, issue.*

Metal Selector in Demand

We would like to obtain two copies of your "Metal Selector" (Oct. 28, 1957, insert). Although we did not take advantage of it at that time, we have since seen copies of the Metal Selector and feel it would be useful to us.

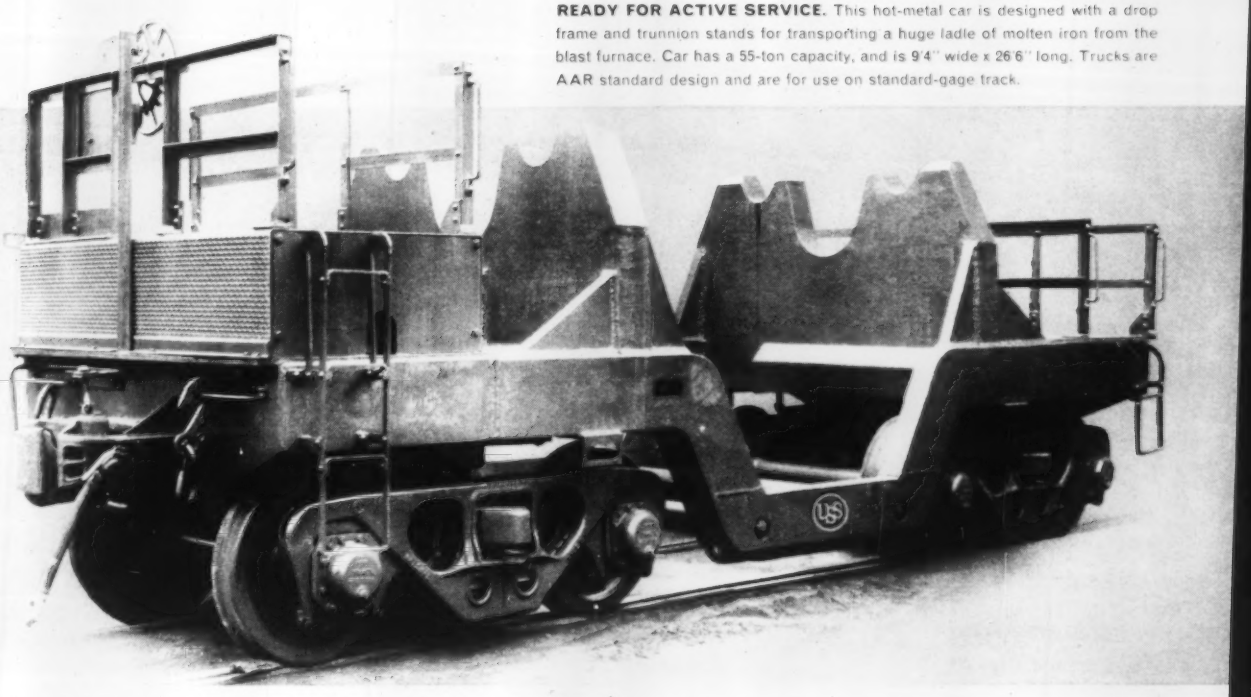
H. W. Hale Jr.
Purchasing Agent
Technicraft Laboratories Inc.
Thomaston, Conn.

More on High Speed Milling

I was interested to read your article, "Are These Tomorrow's Machining Speeds?" (Apr. 14, Page 138) and would appreciate three copies. I seem to recall certain experimental work done by Bell Aircraft during World War II of a similar nature. Do you have any record of these experiments which were run in aluminum? The Bell tests utilized a high speed disc similar to that shown in your illustration.

K. J. Boedecker Jr.
Reynolds Metals Co.
Richmond, Va.

• *We are forwarding a tearsheet, "High-Speed Milling" (STEEL, Oct. 25, 1943, p. 76), which describes the Bell tests.*



READY FOR ACTIVE SERVICE. This hot-metal car is designed with a drop frame and trunnion stands for transporting a huge ladle of molten iron from the blast furnace. Car has a 55-ton capacity, and is 9'4" wide x 26'6" long. Trucks are AAR standard design and are for use on standard-gage track.

Hot-Metal Cars—built to last by a company that uses them

WELDING THE HOT-METAL CAR. Car is fabricated from rolled steel. It is all-welded and subsequently stress-relieved for extra-heavy duty.

Hot-metal cars are subjected to high temperatures and heavy loads as they carry their huge ladles of molten iron from the blast furnace to the mixer. But United States Steel designs and builds these cars to give satisfactory service for many years. It's only natural, because we use these cars daily in our own steelmaking operations, and we actually *know* what kinds of hot-metal cars serve best.

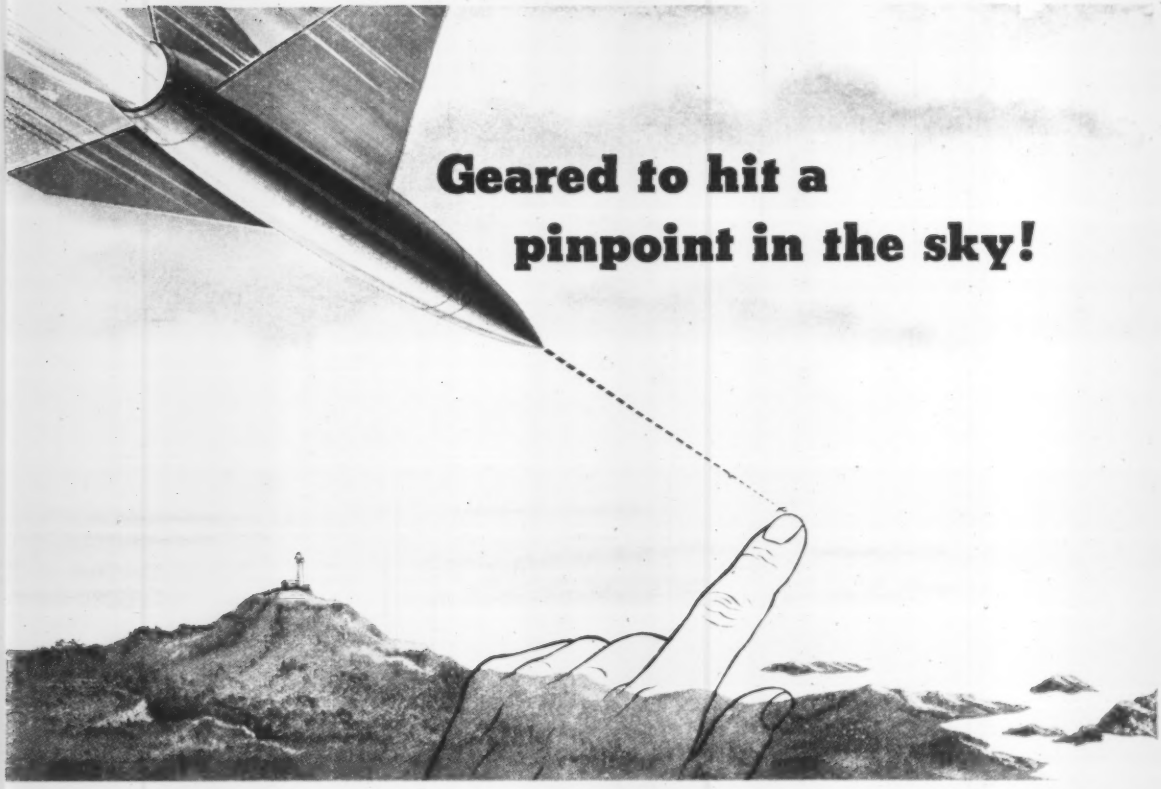
Shown above is a 55-ton capacity hot-metal car with a drop frame and rugged trunnion stands for supporting a ladle of molten iron. The car itself is fabricated from all-welded rolled steel, properly stress-relieved. Its side frames are six-inch rolled-steel plate, and the trunnion stands are eight-inch plate.

This car is equipped with air brakes for use in trains; it also has power hand brakes. Other variations are available in hot-metal cars. For example, cars can be designed to carry two pots, and they can be built with air-operated tilting mechanisms.

For information on many types of industrial cars, send for a free copy of our 32-page illustrated booklet—"USS Custom Designed Cars." And remember, you can call our engineers for consultation at any time convenient to you.

United States Steel Corporation - Pittsburgh
Columbia-Geneva Steel - San Francisco
Tennessee Coal & Iron - Fairfield, Alabama
United States Steel Export Company

USS United States Steel

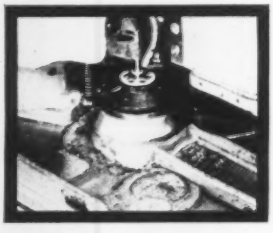


Geared to hit a pinpoint in the sky!

Research and development are constantly extending the range and speed of modern military aircraft and missiles, making higher and higher demands on counter-measures as well.

In designing counter-measure controls to the high degree of accuracy required for our air defense, engineers are specifying gears of greater and greater precision and gear trains whose combined errors are almost infinitesimal. In many plants, gears which meet these specifications are being turned out on *standard* Fellows equipment at a high rate of production.*

To combine extreme accuracy with high production rates, look to the complete Precision Line of Fellows gear production equipment. Fellows Gear Shapers are available in a full range of capacities from 1/16" to 120" P. D. Write, wire, or phone any Fellows office.



*For example, Hughes Aircraft makes up to 15,000 fine pitch gears per month with tooth-to-tooth composite error as small as 0.0003"...on standard Fellows equipment.

THE FELLOWS GEAR SHAPER COMPANY
78 River Street, Springfield, Vermont
Branch Offices:
1048 North Woodward Ave., Royal Oak, Mich.
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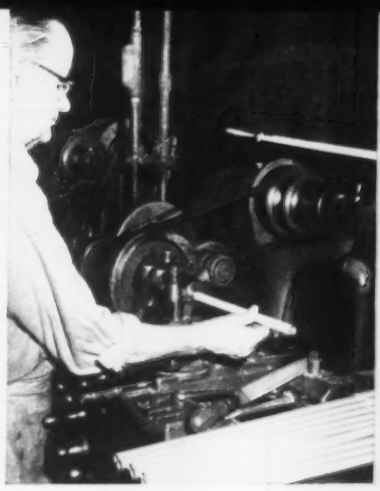
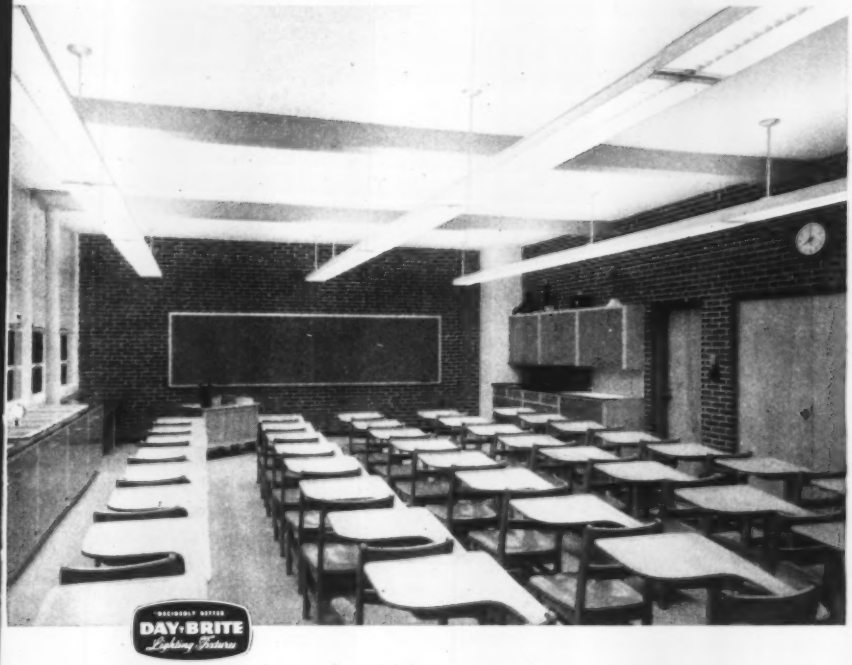
THE PRECISION LINE **Fellows** *Gear Production Equipment*



Operator at Day-Brite plant is lathe-cutting fixture stems fabricated from Youngstown Cold-Rolled Sheets.

Accent on excellence

Youngstown hot and cold-rolled sheets



Students attending the new, modern Concord City School at Concord, North Carolina, will benefit by the latest developments in Day-Brite higher-intensity school lighting. All areas of the classroom will afford the greatest possible visual comfort—without any annoying reflected glare.

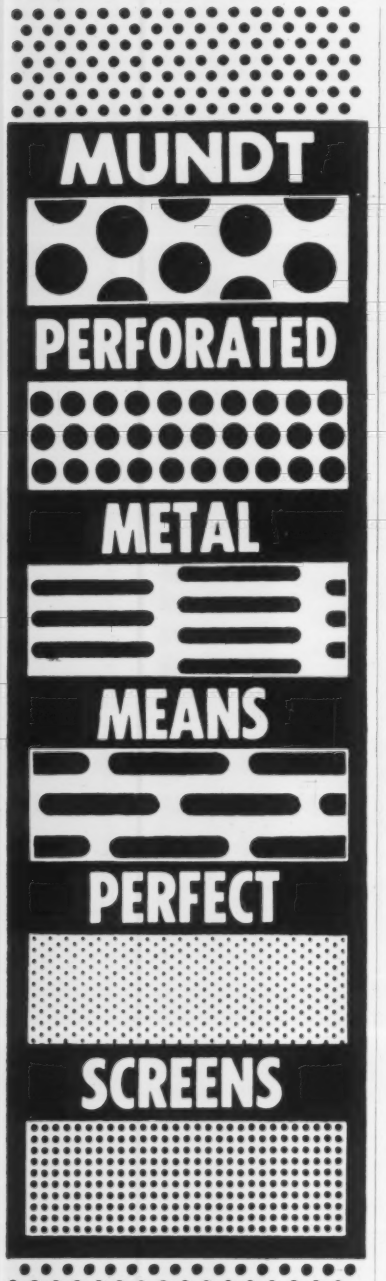
These beautiful, scientifically-designed fixtures, manufactured by Day-Brite Lighting, Inc., of St. Louis, Missouri, are fabricated from Youngstown Hot and Cold-Rolled Steel Sheets. Close quality-control by Youngstown guarantees Day-Brite a sheet of unwavering uniformity that makes possible long, trouble-free production runs—boosts profits, cuts over-all costs.

Wherever steel becomes a part of things *you* make, the high standards of Youngstown *quality*, the personal touch in Youngstown *service* will help you create products with an "accent on excellence".

QUALITY YOUNGSTOWN SERVICE

THE
YOUNGSTOWN
SHEET AND TUBE COMPANY

Manufacturers of Carbon, Alloy and Yoloy Steel
Youngstown, Ohio



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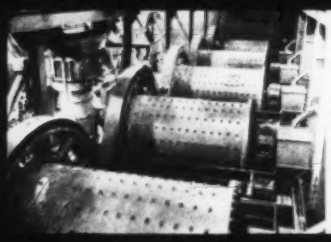
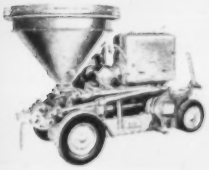


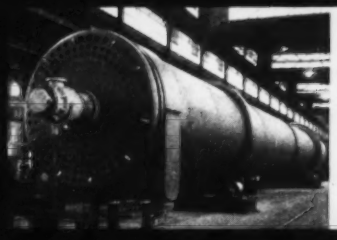
ALLIS-CHALMERS

TSP spur gears, spur pinions on Vibrating Screens and Ball Mills



CHAIN BELT

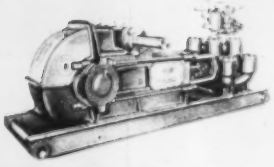
TSP hardened products on Pumpcrete Cylinders



GENERAL AMERICAN

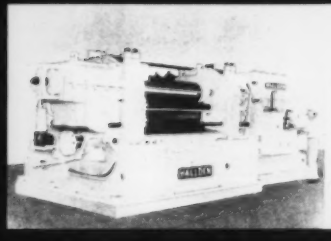
TSP trunnion rollers on Dryers

Why do these equipment builders use TSP hardened products?



WHELAND

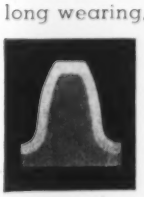
TSP gears and pinions on Slush Pumps



HALLDEN

TSP gears, pinions, racks on Flying Shears

"Tool Steel Process" hardened products when used as components, virtually eliminate replacement problems. Fewer replacement expenses, maintenance savings, reductions in costly "downtime" mean greater customer satisfaction. That's why Allis-Chalmers Manufacturing Company, Chain Belt Company, General American Transportation Corporation, The Wheland Company and The Hallden Machine Company and many more use TSP hardened products to increase the over-all quality and life of their equipment. Here are a few reasons why TSP hardened products are so desirable. They are phenomenally long wearing, a result of our special hardening process. The file hard surface to the full depth of permissible wear gives maximum life. The core, refined for toughness and ductility, gives maximum strength. Note even depth of hardness of gear tooth cross section.



TSP hardened products are made to order from your blue prints or to fit existing equipment. They include gears, pinions, track wheels, sheave wheels, axles, rolls, bushings, liners, sprockets, screw down screws and nuts, shafts, drive clutches, trunnions, hoist drums and many others. Gears are made in sizes to 90" diameter. Other products up to 22,500 lbs. They are guaranteed in writing to outlast, out-perform any competitive part in the same service.

Write for free Bulletin 352, "Why Are They Called TSP Products"

THE TOOL STEEL GEAR AND PINION CO.
CINCINNATI 16, OHIO, U.S.A.

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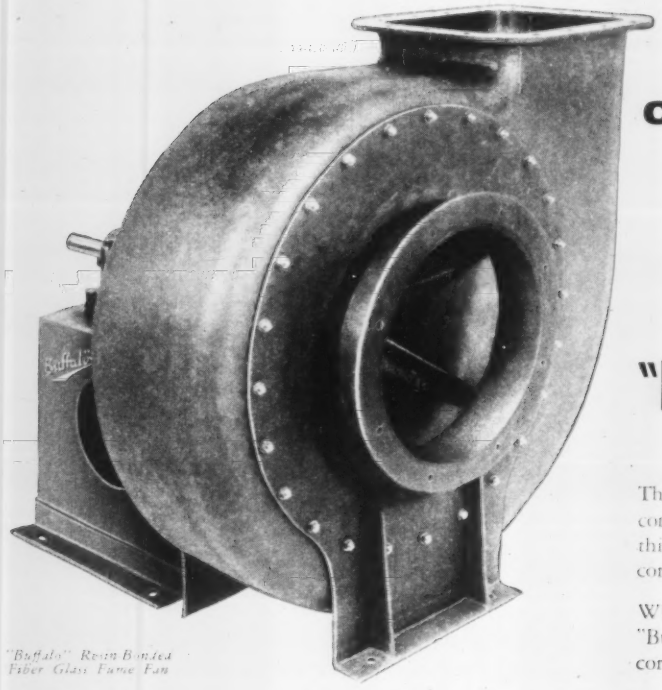
The Standard of Quality Since 1909 for Gears • Pinions • Rolls • Wheels and Other Hardened Products



"Buffalo" Resin Bonded Fiber Glass Fume Fan

CORROSION-CONTROL PROBLEMS?

SOLVE THEM WITH THESE SPECIAL "BUFFALO" UNITS

The broad line of "Buffalo" equipment for corrosion control, plus our 80 years of engineering experience in this field, insures you of the most effective solution of your corrosive fume problems.

Whatever your specific needs, you will find the *right* "Buffalo" product with the *right* protective coating and/or corrosion-resistant parts to fill that need.

Contact your nearby "Buffalo" Engineering Representative, or write us outlining your problem. We will be glad to provide you with a prompt, practical, economical solution.

"Buffalo" Type "FG" Fume Fans provide superior chemical resistance to a wide variety of corrosives, including acids, salts, gases, organic materials. Temperature applications range up to 225° F.

The fan housing is formed of resin-bonded fiber glass. All exposed areas of the carefully-balanced steel rotor are encased in thick fiber glass. The "FG" is available in standard capacities up to 34,000 cfm at pressures to 10" static.

For full details, including chemical resistance table, write for Bulletin FI 511.

"Buffalo" Cast Iron Exhausters, widely-used throughout the chemical process industries, are engineered to operate under the most extreme corrosive conditions.

Husky cast iron housings, plus cast inlet cones with integral inlet vanes, guide air smoothly into the wheels. The result is the low-turbulence air flow inherent in this high-efficiency design. Non-overloading is insured, regardless of system pressure.

Three arrangements are available: direct motor drive, separate belt drive or a package unit with adjustable pitch V-belt drive and motor mounted on adjustable base rails.

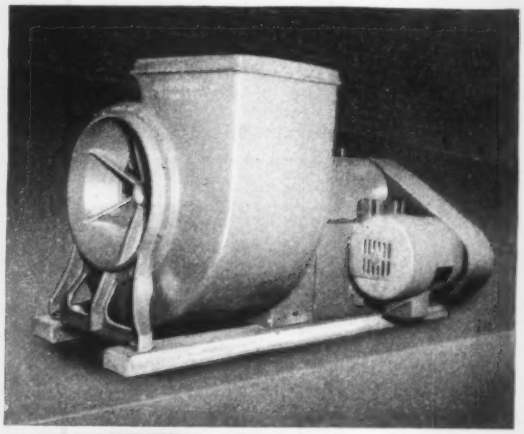
For full information on "Buffalo" Cast Iron Exhausters, contact your nearest "Buffalo" Representative or write us direct.

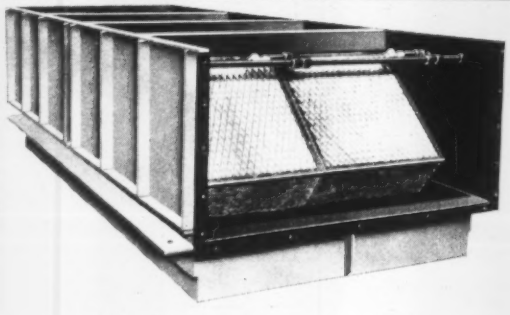
"Buffalo" Gas Absorbers are designed for highly efficient removal and/or recovery of soluble gases, vapors and mists from exhaust systems before discharge to the atmosphere. Absorption is accomplished when the contaminant is completely in solution. This is accomplished by means of an absorbent liquid sprayed on a series of fiber cells.

Field performance tests prove that efficiency of "Buffalo" Gas Absorbers ranges up to 99.8%. Applications fall into two categories: removal of low concentrations from stack gas effluents for prevention of atmospheric pollution, and the absorption of process or off-gases containing sufficient material to make reutilization economically feasible.

Bulletins AP-225 and AP-2500 will guide you to the proper "Buffalo" Gas Absorber to solve your contamination problem. Write for it today.

EVERY "BUFFALO" PRODUCT FEATURES THE "Q" FACTOR — the built-in Quality which provides trouble-free satisfaction and long life.





Top *"Buffalo" Cast Iron Exhauster*

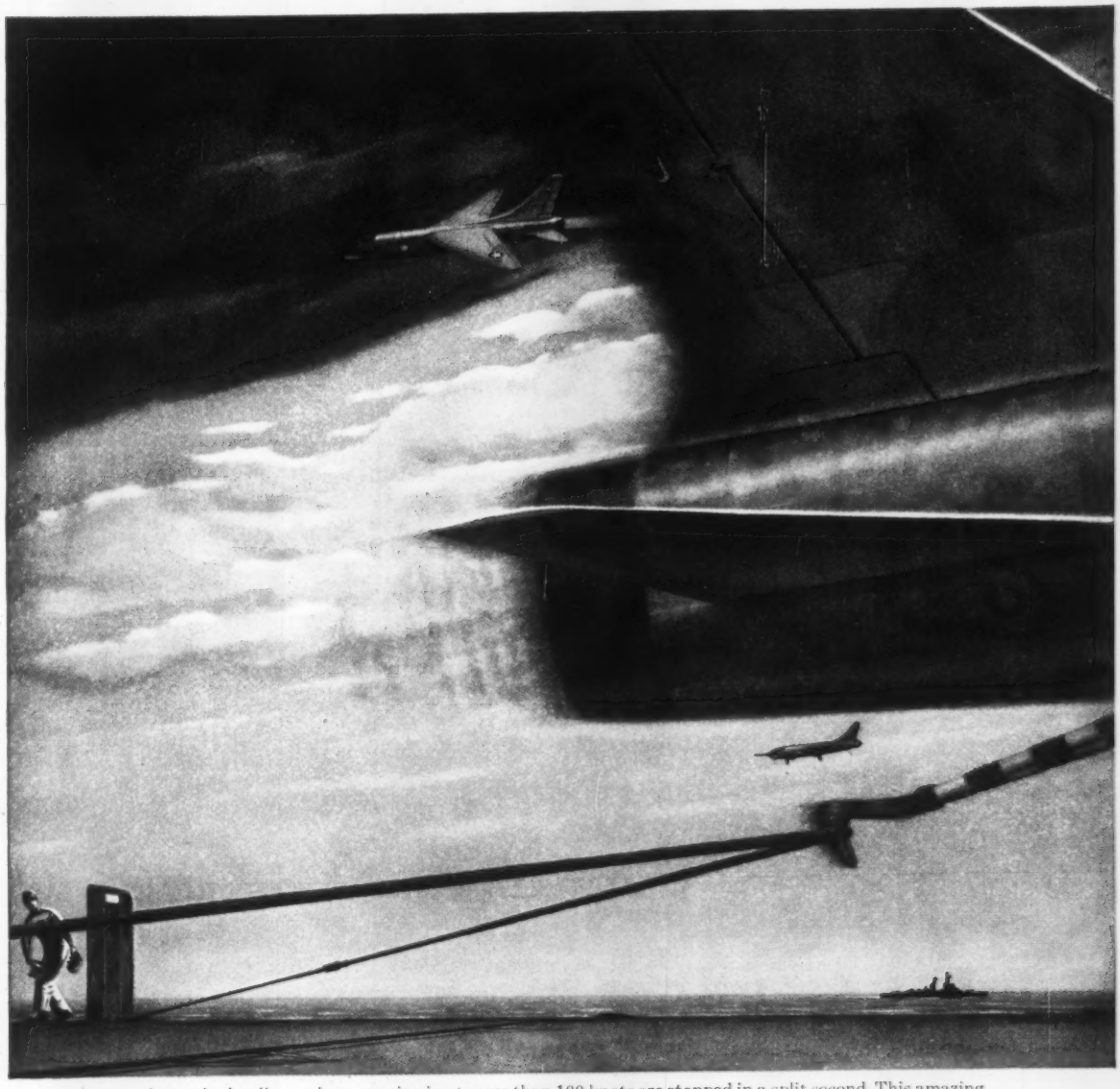
Bottom *"Buffalo" Gas Absorber*

BUFFALO FORGE COMPANY

BUFFALO, N. Y.

Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

VENTILATING • AIR CLEANING • AIR TEMPERING • INDUCED DRAFT • EXHAUSTING
FORCED DRAFT • COOLING • HEATING • PRESSURE BLOWING



In carrier landings, planes coming in at more than 100 knots are stopped in a split second. This amazing performance is made possible by having each plane hook onto one of several wire ropes stretched across the flight deck. Both plane and rope receive an almost unbelievable shock at the moment of contact. Needless to say, only top-quality wire ropes can be used for this application because . . .

you can't bargain with safety

While your use of wire rope differs from this carrier application, *safety should be just as important to you.* For, although a "bargain" rope may save you money, it can cost you your peace of mind. So don't bargain with safety. Buy a rope that's a *quality* rope—buy Wickwire Rope. 5049

WICKWIRE ROPE — A CF&I PRODUCT

CF&I

LOOK FOR THE YELLOW TRIANGLE

PRODUCT OF WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORPORATION

THE COLORADO FUEL AND IRON CORPORATION—Denver • Houston • Odessa (Tex.) • Phoenix • Salt Lake City • Tulsa
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WICKWIRE SPENCER STEEL DIVISION—Boston • Buffalo • Chattanooga • Chicago • Detroit • Emlenton (Pa.) • New Orleans
New York • Philadelphia

New Materials Handling Ideas from Republic

SPECIAL STEEL PALLETS HELP JOHN DEERE CUT ENGINE LOADING TIME 80%, UNLOADING TIME 86%

VALUABLE TIME AND SPACE ARE SAVED at John Deere with Republic Steel Pallets. Design and construction features allow fully loaded pallets to be tiered three high. Four-way entry permits pallets to be picked up from any side, provides ease of handling in tight quarters.

PRECISION MADE, REPUBLIC STEEL "BOLT DOWN" PALLETS have helped solve a tough, expensive, interplant shipping and handling problem at John Deere, because they were engineered to the requirements of the job.

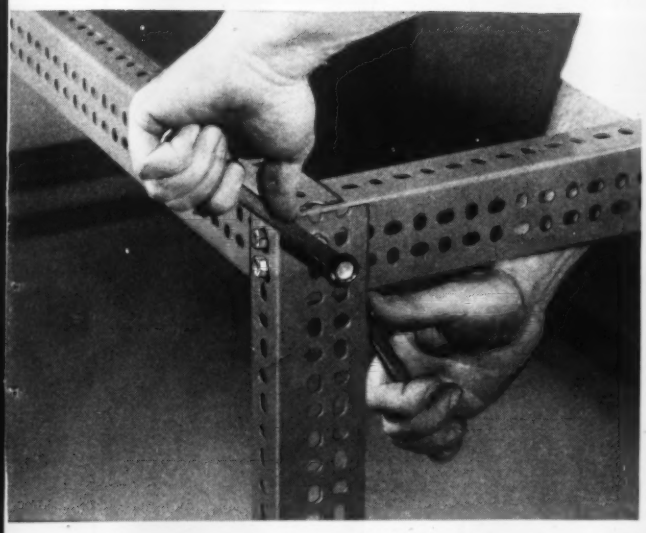
Four combine engines are bolted on to each pallet at Deere's Dubuque, Iowa, tractor plant, then trucked to the Harvester Works at East Moline, Illinois. There, the engine-loaded pallets are picked up by fork trucks and moved quickly and easily to the production line or to temporary storage.

Use of Republic Steel Pallets eliminates the need for truck dunnage for shoring up each individual engine. This feature alone results in a time saving of 80% in loading operations and 86% in unloading.

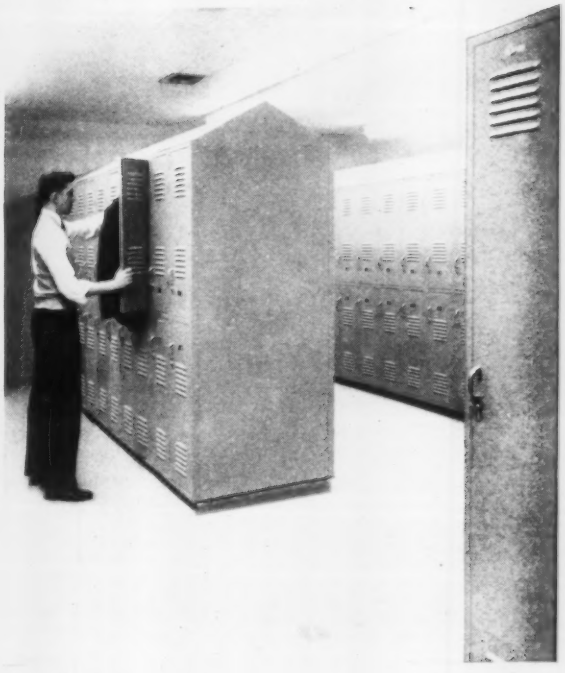
The pallets, designed and made by materials handling specialists at Republic's Berger Division, measure 43" wide and 64" long. Each pallet is equipped with 16 threaded holes for bolting down the engines. Spacing of these holes is such a critical part of the pallet design that they must meet a tolerance requirement of 1/32 of an inch.

Tough, strong steel and corrugated construction combine to take the heavy engine loads in stride. Steel pallets were selected for this application by Deere, because they would require minimum maintenance and would be usable over many years.

Why not talk over your handling or storage problem with a Republic Engineer. A specially designed or standard pallet, box or skid could help you save time, cut costs, simplify an operation. Contact your Republic Materials Handling Representative. Or mail the coupon. There is no obligation.



NEW IDEA FROM REPUBLIC for making special purpose tables, stands, catwalks, racks, scaffolds. It's BILD-A-FLEX, Republic Berger Division's slotted construction angle. Use it as "metal lumber". Simply plan your assembly, cut BILD-A-FLEX, join with bolts. Horizontal and vertical slots make adjustment easy. Bonderized and finished with gray baked enamel after fabrication. Shipped in convenient bundles of 10 angles, 10- or 12-foot lengths. Stores in same space as one 2″ x 4″ piece of lumber. Write for new idea-loaded catalog.



PRACTICAL IDEA for storage needs of plant personnel—Republic Steel Lockers. Indispensable wherever clothing must be changed or stored. Safe, pilfer-proof, tamper-proof. Available in a wide choice of styles and locking mechanisms. Bonderized for lasting paint adherence and resistance to damage. Republic's Berger Division will help you plan your new or enlarged locker system and handle all details. Write for facts.

SAVE TIME with Republic Sectional Bar Racks. Load or unload from either end or either side. Each upright supports 40,000 pounds of bar stock, shafting, pipe, when loaded both sides. Handles short or long stock with equal ease and convenience. Made by Berger to any desired length in multiples of 35- or 70-inch units. Uprights are 96 inches high, with 11-inch brackets adjustable at six-inch intervals. Send coupon for details.

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☐ Have a Materials Handling Engineer call.
Send more information on:
☐ Materials Handling Equipment.
☐ BILD-A-FLEX Angles
☐ Lockers ☐ Sectional Bar Racks

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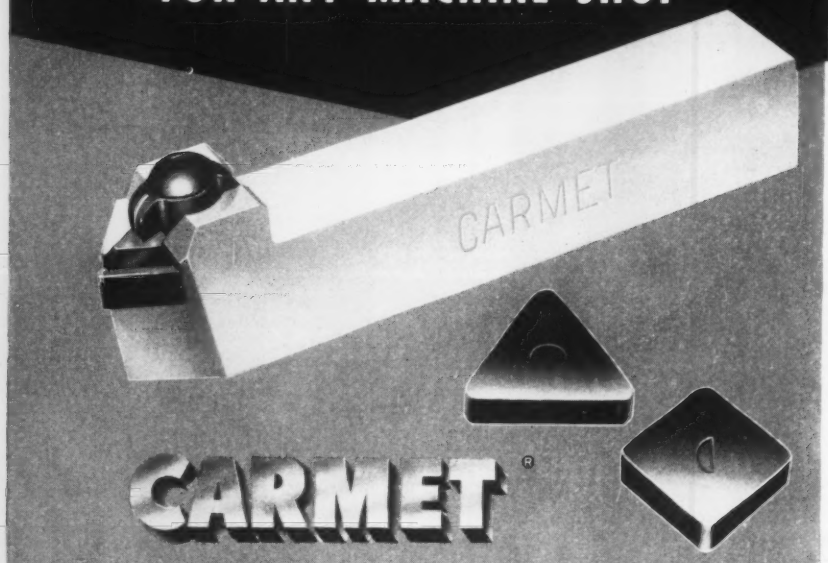
MONEY-SAVING COMBINATION FOR ANY MACHINE SHOP



CARMET®

TOOL HOLDERS AND INDEXABLE INSERTS

To help you get every advantage from carbide cutting tools—high production, operating efficiency and economy—Carmet offers a full line of improved-design tool holders—*over* 115 styles and sizes to choose from in *both* positive and negative rake.

And Carmet Indexable inserts are available in more than 20 styles and sizes and in six different carbide grades—each insert permanently marked for positive grade identification—to give you *top* cutting performance.

Carmet tool holders and Indexable inserts make machining with carbides practical for any size plant. Match a Carmet tool to your requirements—or let Carmet give you engineering assistance in setting up a complete tooling program—and watch your production climb as costs go down. Inquire today.

• *Allegheny Ludlum Steel Corporation, Carmet Division, Detroit 20, Mich.*

Write for this NEW CATALOG

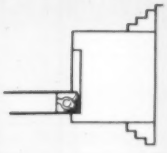
CARMET TOOL HOLDERS and INDEXABLE INSERTS

Expanded to 16 pages, this latest edition contains specifications of Carmet tool holders and Indexable inserts, replacement parts for tool holders, and information on choosing the proper carbide grade for the job.

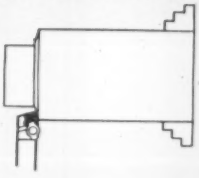
ADDRESS DEPT. S-5

MATCH THE TOOL TO THE JOB

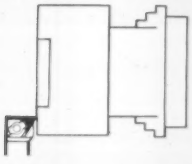
STYLE **TATR** COUNTERBORING



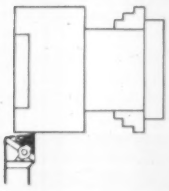
STYLE **SBTR** HEAVY-DUTY TURNING



STYLE **TFTR** FACING



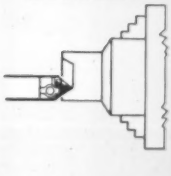
STYLE **TGTR** FACING



STYLE **SFTR** FACING

STYLE **SET** CHAMFERING

STYLE **TDTR** CHAMFERING



WSW 6882

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Branch offices and distributors in all principal cities

CALENDAR
OF MEETINGS

June 1-4, American Gear Manufacturers Association: Annual meeting, Homestead, Hot Springs, Va. Association's address: 1 Thomas Circle, Washington 5, D. C. Executive secretary: J. C. Sears.

June 1-5, National Association of Power Engineers: Annual meeting, Ambassador Hotel, Atlantic City, N. J. Association's address: 176 W. Adams St., Chicago 3, Ill. Secretary: Edward J. Schuetz.

June 2-4, National Fluid Power Association: Annual meeting, Bedford Springs Hotel, Bedford, Pa. Association's address: 1618 Orrington Ave., Evanston, Ill. Executive secretary: Barrett Rogers.

June 2-5, American Nuclear Society: Annual meeting, Hotel Statler Hilton, Los Angeles. Society's address: P. O. Box 963, Oak Ridge, Tenn. Executive secretary: W. W. Grigorieff.

June 2-5, National District Heating Association: Annual meeting and exhibit, French Lick Sheraton Hotel, French Lick Springs, Ind. Association's address: 827 N. Euclid Ave., Pittsburgh 6, Pa. Secretary-treasurer: John F. Collins Jr.

June 3-6, National Industrial Advertisers Association: Annual conference, Chase-Park Plaza Hotel, St. Louis. Association's address: 271 Madison Ave., New York 16, N. Y. President: John C. Freeman.

June 4-5, Pressed Metal Institute: Personnel management meeting, Carter Hotel, Cleveland. Institute's address: 3673 Lee Rd., Cleveland 20, Ohio. Managing director: Harold Daschner.

June 5-7, Steel Kitchen Cabinet Manufacturers Association: Annual meeting, Greenbrier, White Sulphur Springs, W. Va. Association's address: 812 Engineers Bldg., Cleveland 14, Ohio. Executive secretary: Arthur J. Tuscany Jr.

June 8-13, Society of Automotive Engineers: Summer meeting, Challonte-Haddon Hall, Atlantic City, N. J. Society's address: 485 Lexington Ave., New York 17, N. Y. Secretary: John A. C. Warner.

June 9-10, Malleable Founders' Society: Annual meeting, Homestead, Hot Springs, Va. Society's address: 1800 Union Commerce Bldg., Cleveland 14, Ohio. Executive vice president: Lowell D. Ryan.

June 9-11, American Management Association: Special manufacturing conference, Hotel Carter, Cleveland. Association's address: 1515 Broadway, New York 36, N. Y. President: Lawrence A. Appley.

"POP"® RIVETS
can probably save you money . . .
Even if your present fasteners are free!

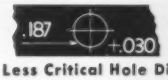
Greater Design Flexibility
No need for access to both sides.

High Clinching Action
Exerts as high as 600 pounds squeeze between parts.

Wide Grip Range
Same length "POP" Rivet holds tight through thick or thin.

Vibration Proof
"POP" Rivets cannot back out or become loose. No lock washers or nuts required.

Low Head Profile
Where space is important, "POP" Rivets' minimum head height is the answer.



Less Critical Hole Diameter
Designer wants holes tight, production wants holes larger. "POP" Rivets make both happy.

Least Back-Up Space
Strong, high grip "POP" Rivets need only enough back-up space to provide room for set head.

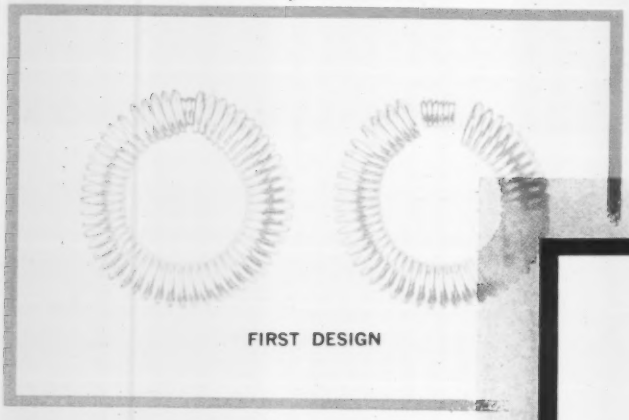
When buying fasteners, do you figure the *installed costs?* A fastener considered alone may cost very little but be very expensive by the time it's installed and becomes part of a finished product.

"POP" Rivets afford greater flexibility in product design. Often operations can be eliminated, assembly costs reduced, and speed of fastening increased.

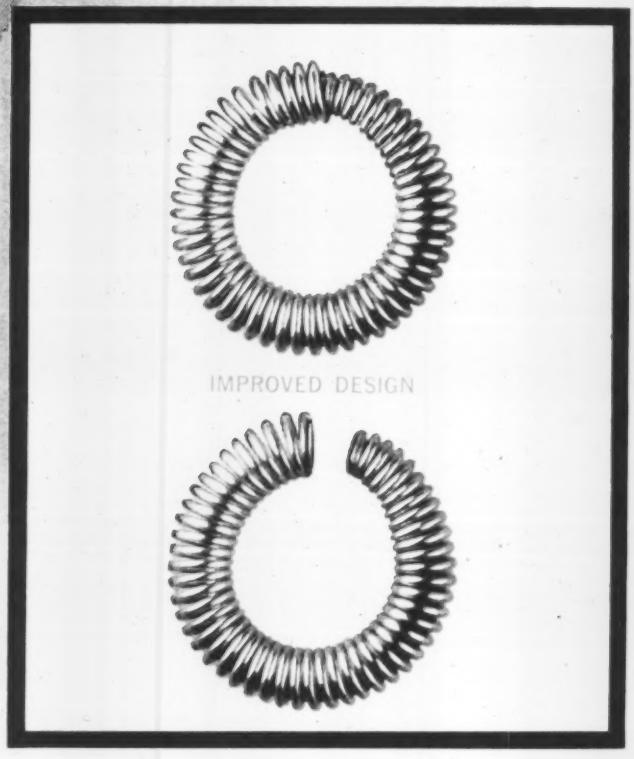
Many users find high strength "POP" Rivets the most efficient and economical fastener for their product. Investigate its use in your application. Perhaps you too can enjoy the many advantages "POP" Rivets have to offer. Write us today.

"POP" RIVET
DIVISION
UNITED SHOE MACHINERY CORPORATION
West Medway, Mass.

How a change in spring design can reduce cost and improve performance.



FIRST DESIGN



IMPROVED DESIGN

In the original conception of this switch retaining spring, an extension spring was formed into a garter spring by inserting a small plug in the form of a spring into the two ends. Assembly operation proved difficult and costly.

In the redesigned spring, one end is reduced in diameter and inserted into other end, eliminating the spring plug and providing stronger unit.

Early consultation with our spring specialists, following the determination of fundamental performance characteristics, is often insurance against unnecessarily complicated manufacture. Write for pamphlet "How to solve your spring problems." Gives case histories and valuable design considerations for various types of springs.

Associated Spring Corporation

General Offices: Bristol, Connecticut

Wallace Barnes Division, Bristol, Conn. and Syracuse, N. Y.
B-G-R Division, Plymouth and Ann Arbor, Mich.
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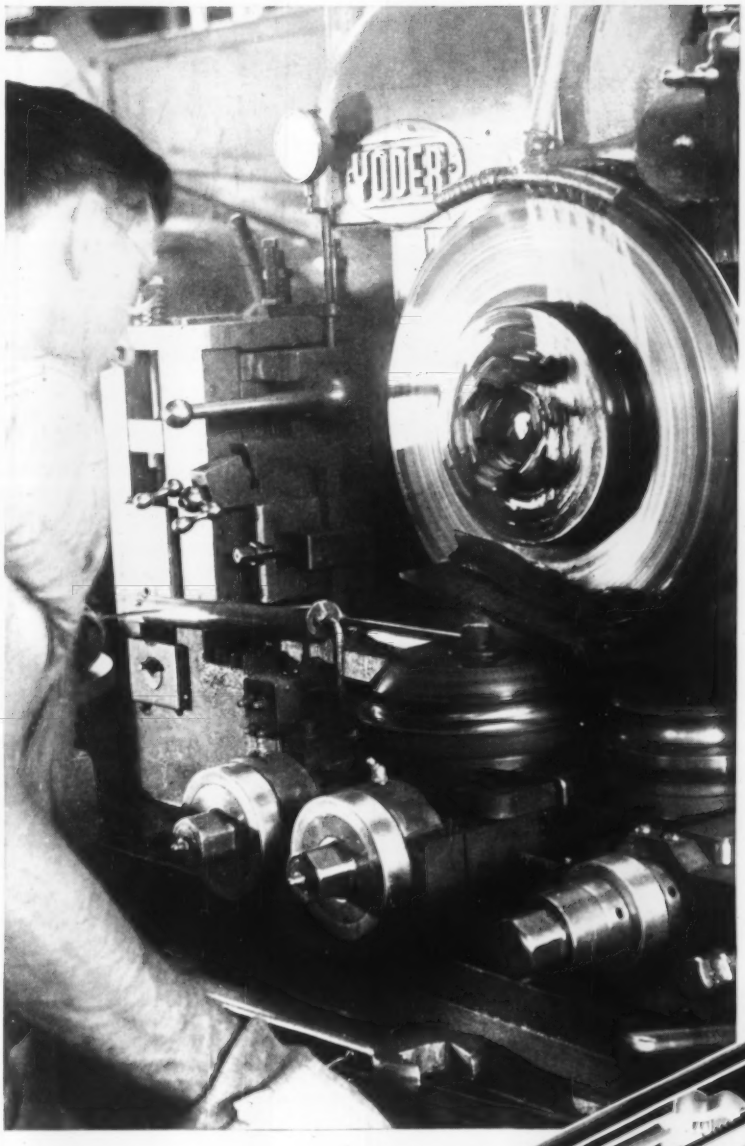


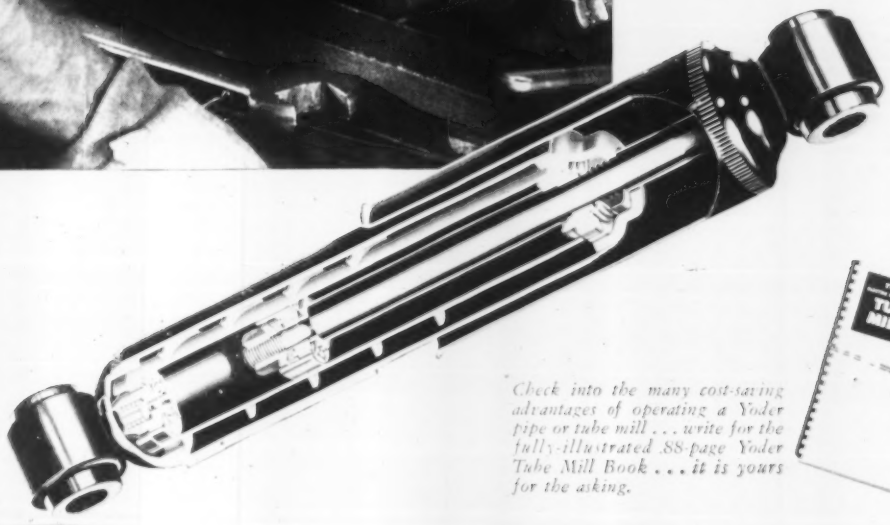
Monroe Shock Absorbers rely on performance of YODER Tube Mills!

After 15 years of continuous operation the Yoder Type-M Electric-Resistance Weld Tube Mill shown here, is still producing precision tubing for the Monroe Auto Equipment Co., Monroe, Michigan.

Yoder produced tubing is the basic component of the famous "Monro-Matic" shock absorber. Measuring 2 1/64" outside diameter (plus several other sizes) the tubing is made from 22 gauge strip in one continuous operation . . . it is automatically cold-roll formed, welded and cut to pre-determined lengths.

This typical installation of a Yoder tube mill exemplifies the accuracy, dependability and production economies of Yoder-made tubing. If your business requires pipe or tubing, ferrous or non-ferrous, in sizes from 1/4" to 26" diameters, there is a Yoder mill designed to produce it economically, efficiently and accurately.

THE YODER COMPANY
5502 Walworth Avenue • Cleveland 2, Ohio

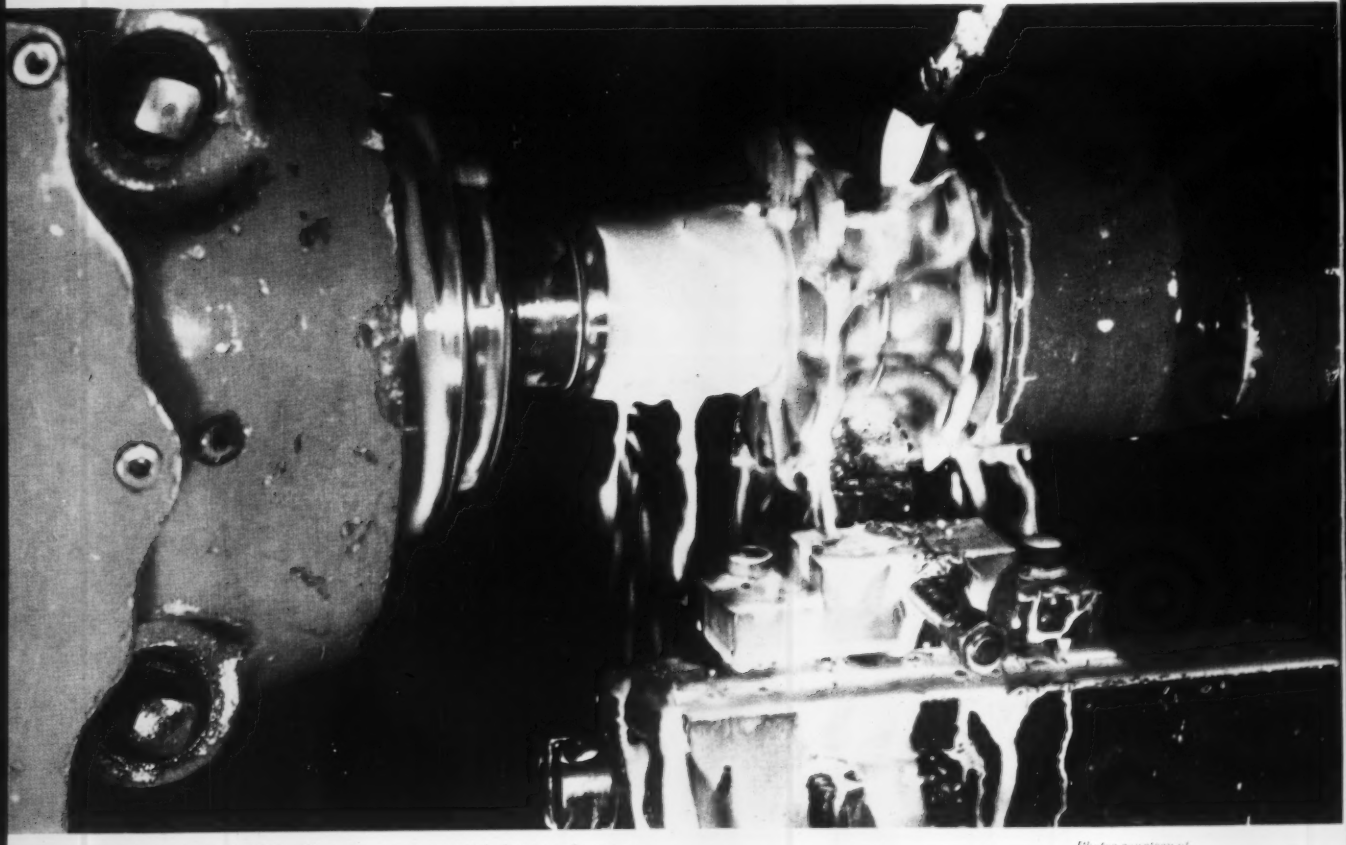


Check into the many cost-saving advantages of operating a Yoder pipe or tube mill . . . write for the fully-illustrated 88-page Yoder Tube Mill Book . . . it is yours for the asking.

ENGINEERING **YODER** MANUFACTURING

PIPE AND TUBE MILLS (ferrous or non-ferrous)
COLD ROLL FORMING MACHINES
ROTARY SLITTING LINES

Wheels and machines stay cleaner with emulsions of new S.E.C.O. Also, finishes are better.



Emulsions of new S.E.C.O. allow faster cuts with less tool wear.

Photos courtesy of Peter Salmon Co., Glenside, Pa.

NEW EMULSIFYING OIL KEEPS MACHINES CLEAN, PROTECTS AGAINST RUST, GIVES IMPROVED HARD-WATER EMULSION STABILITY

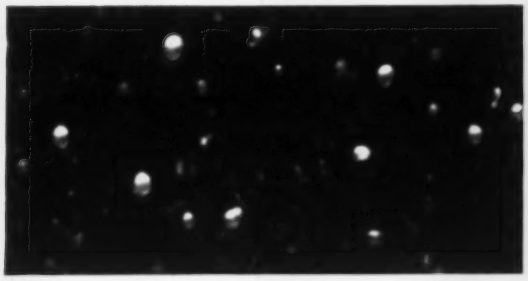
Emulsions of Sun's new S.E.C.O. (Sunoco Emulsifying Cutting Oil) with smaller oil particle size give you the following benefits—

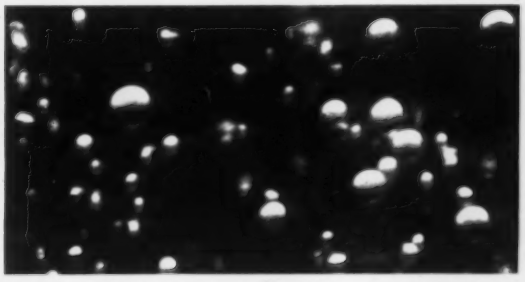
EMULSION STABILITY—In hard-water areas, impartial field tests show that emulsions of *new* S.E.C.O. stand up better under more severe conditions than those made with other regular emulsifying cutting oils.

DETERGENCY—The excellent wetting properties and detergency of *new* S.E.C.O. allow dirt and fines to settle quickly out of emulsions. Grinding wheels and machines stay cleaner.

RUST-PREVENTION—The smaller oil particle size in emulsions of *new* S.E.C.O. gives better metal wetting properties and increased protection against rust and corrosion. See photos below.

If you're a regular user of S.E.C.O., notice how much it has been improved. If you're not, find out what we mean about greater economy and improved production with *new* Sunoco Emulsifying Cutting Oil. Call your Sun representative, or write to Sun Oil Company, Philadelphia 3, Pa., Dept. I-9.





800x photomicrographs of 10% emulsions. *New* S.E.C.O. emulsion on left contains *8 times* as many oil particles per unit volume as ordinary emulsion on right. Many minute particles in S.E.C.O. emulsion do not show at this magnification.

SUNOCO

INDUSTRIAL PRODUCTS DEPARTMENT

SUN OIL COMPANY Philadelphia 3, Pa.

IN CANADA: SUN OIL COMPANY LIMITED, TORONTO AND MONTREAL

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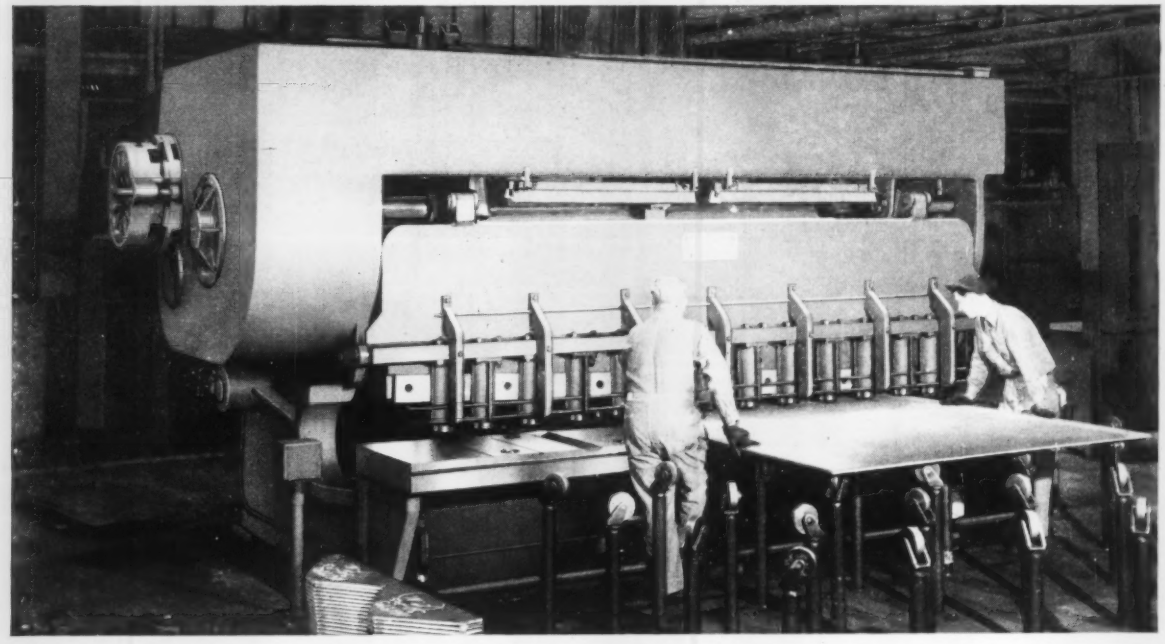
Better Cuts Make Better Fits for Road Machinery Builder



This rugged machine is in service two shifts — 16 hours a day — five days a week shearing parts of various thicknesses and shapes for heavy earth-moving equipment. It is rated for mild steel 12' x 1".

THE ease with which good, square, accurate cuts are obtained has made the Steelweld Shear of a road machinery manufacturer very popular with the operators and shop management.

Experienced with various type shears, they know the importance of easy knife clearance adjustment. They know that the best cuts are obtained when the correct clearance is provided for each thickness of plate being cut. As they point out, improper knife clearance on any shear often results in a heavy plate being cut at an angle with respect to the thickness, or light gauge metal burring.

Adjusting knife clearance on Steelweld Shears is such an easy, quickly-performed task that operators take care of it automatically. Turning a hand crank until a gauge pointer is on the proper metal-thickness figure is all that is necessary — a task done in a matter of seconds.

The big time saving made on knife changing as compared with most shears is another factor greatly appreciated. Easily done in two hours on a Steelweld, this job frequently requires all day on other machines.

Steelweld's unusual pivoted-blade operating principle makes possible outstanding cost-cutting advantages. For the complete story, send for the catalog below.

GET THIS BOOK!

CATALOG No. 2011 gives construction and engineering details. Profusely illustrated.

THE CLEVELAND CRANE & ENGINEERING CO.
STEELWELD DIVISION • 7840 E. 282 ST. • WICKLIFFE, OHIO

STEELWELD PIVOTED BLADE SHEARS

ARTIST'S INTERPRETATION

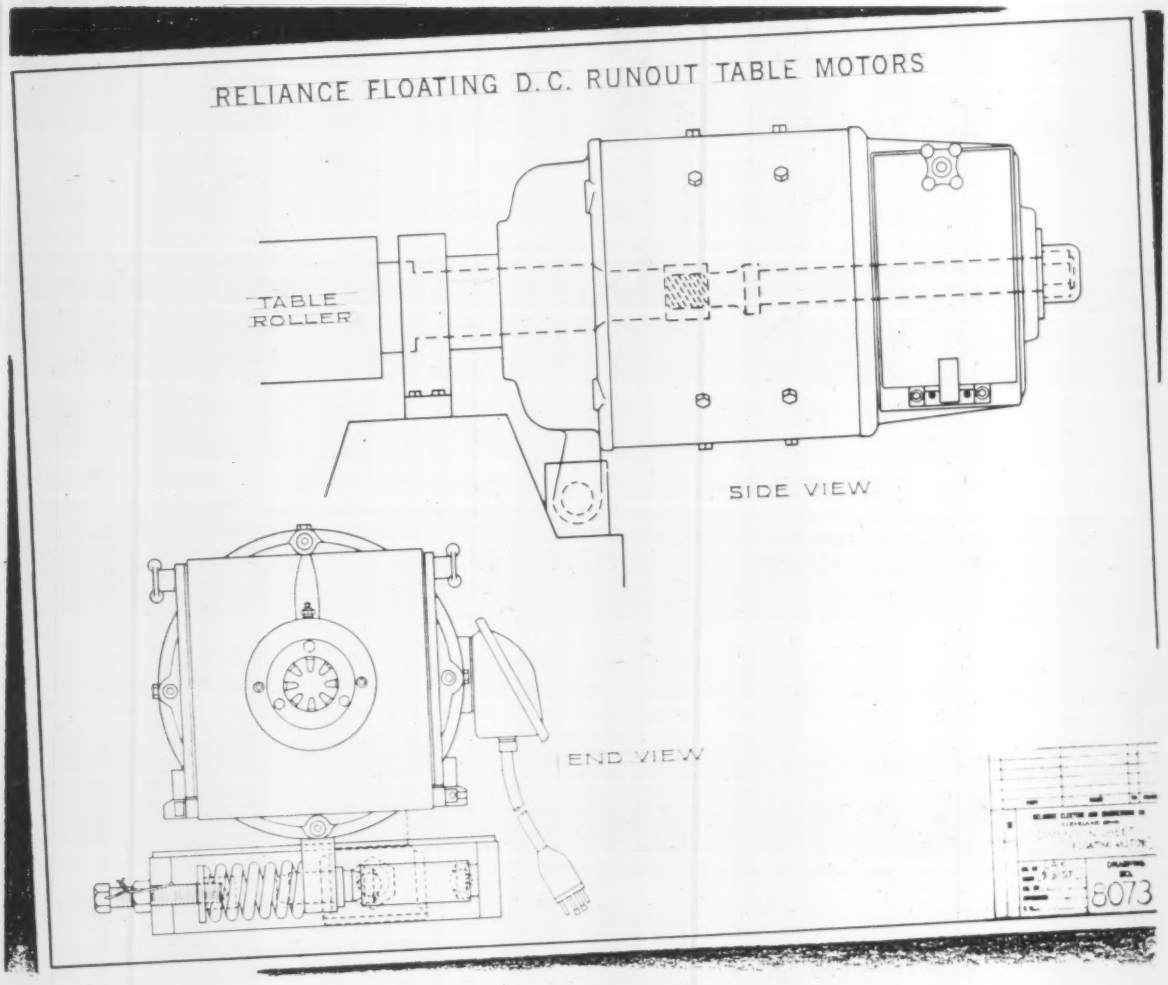
There is no substitute for stainless steel

in outer space

From the intense cold of outer space to the heat of a jet engine, Stainless Steel is the one metal that will stand up. In rockets, missiles and supersonic aircraft, Stainless Steel resists heat, friction and corrosion, has a high strength to weight ratio and maintains its structural integrity under the most severe conditions.

Specify McLouth high quality sheet and strip Stainless Steel. McLouth Steel Corporation, Detroit 17, Michigan.

McLOUTH STAINLESS STEEL



Reliance runout table motors cut installation and maintenance costs

Reliance Hollow Shaft, floating motors are easy to install. They require no special pedestals or flexible couplings.

The hollow shaft motors fit right over the table-roller shaft. No special alignment is required. Warpage and backlash compensation are handled by the heavy tie-down spring. Not only are coupling maintenance and lubrication eliminated, but a much greater degree of roller misalignment can be tolerated.

Reliance Floating motors are designed and built specifically for runout table service. They are available with a wide range of speeds and out-put torques. For complete information contact your local Reliance Representative, or write for Bulletin No. F-2051. C-1567

RELIANCE ELECTRIC AND ENGINEERING CO.

DEPT. 45A, CLEVELAND 17, OHIO
CANADIAN DIVISION: TORONTO, ONTARIO
Sales Offices and Distributors in principal cities

For Longer Life . . .
Less Kerf . . . Best Non-Ferrous Cutting

SIMONDS
HARD RIM SAW

This Simonds solid saw (new to the market) has already made a *solid* hit! The men who have to get the work out are sold on the Simonds "Hard Rim's" longer cutting life between sharpenings . . . the better finish it imparts to the non-ferrous metals and plastics it cuts so smoothly . . . the minimum kerf as against non-solid saw cutting. Yes and everyone likes the Simonds "Hard Rim" because of its non-shattering safety when run at high speeds and the protective advantages to personnel.

This very true cutting saw is available in diameters of 8″ to 18″. Try it out — call your Simonds Distributor!

QUICK FACTS

Saw Rim — Made very hard for unparalleled resistance to abrasion and wear

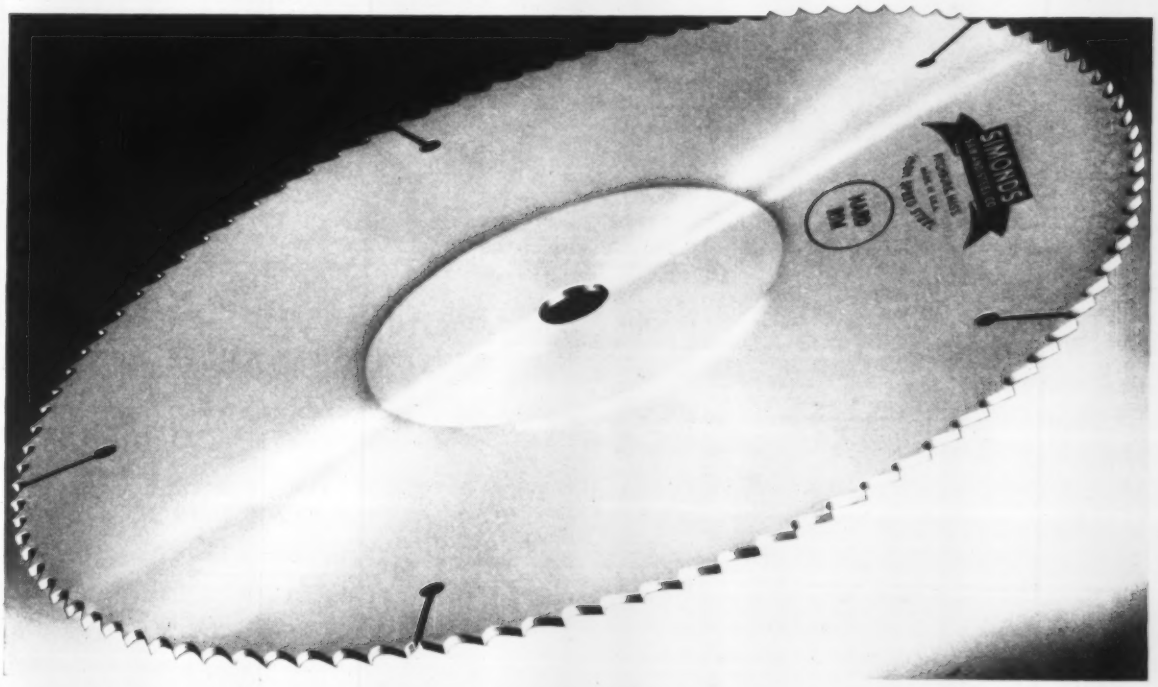
Saw Body — Made just hard enough to keep the saw cutting straight

Resharpening — Easily done on standard saw grinding equipment

For Fast Service from Complete Stocks Call your SIMONDS Industrial Supply DISTRIBUTOR

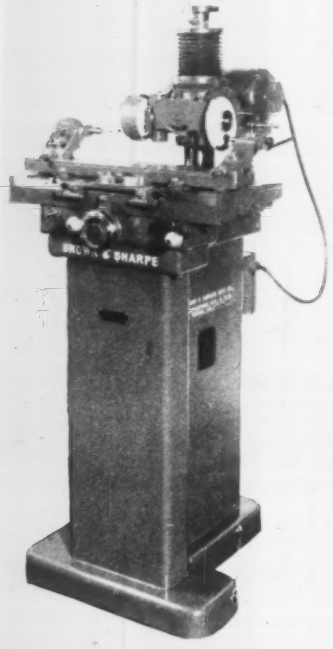
SIMONDS SAW AND STEEL CO.
FITCHBURG, MASS.

Factory Branches in Boston, Chicago, Shreveport, La., San Francisco and Portland, Oregon
Canadian Factory in Montreal, Que., Simonds Divisions: Simonds Steel Mill, Lockport, N. Y.
Heller Tool Co., Newcomerstown, Ohio, Simonds Abrasive Co., Phila., Pa., and Arvida, Que., Canada



Weldynamics

ARC WELDING AT WORK CUTTING COSTS



Weldynamics saves 38% on Brown & Sharpe grinder base

A more rigid, better looking machine at 38% less cost—thanks to Weldynamics. In redesigning the former welded construction, details were simplified to use preformed parts. Welds are now more accessible and made faster. Parts can be machined before assembly, reducing storage and handling costs.

Original design in welded steel had to be assembled before machining causing increased handling and storage costs.

New design of welded steel weighs less, costs less and looks better. Components are simple and machining is completed before assembly. All welds are easily made and finishing costs held to minimum.

How to put **WELDYNAMICS** to work for you

Direct consultation with Lincoln men, trained in Weldynamics, to help you with procedures, and to recommend the proper machines and electrodes—Product Design Seminars conducted to help you design correctly in welded steel—Design Bulletins, sent free to design engineers and production supervisors, offer design ideas—Procedure Handbook, contains over 1300 pages, 240 devoted to machine design practices. $3.00 postpaid in U.S.A., $3.50 elsewhere. Write us.

The World's Largest Manufacturer of Arc Welding Equipment

LINCOLN

© 1958 The Lincoln Electric Company

THE LINCOLN ELECTRIC COMPANY, DEPT. 1640, CLEVELAND 17, OHIO

Today's industries need Gerlinger Continuous Operation

Gerlinger Fingertip Control makes this powerful lift truck simple and easy to operate. Motive, hoist and tilt levers are located within reach of operator's right hand.

Gerlinger Torqmatic Drive safeguards engine from damaging shocks, prevents stalling, eliminates gearshift guess and lessens driver fatigue. Advanced Gerlinger Power Steering is an optional extra.

Gerlinger Material Carriers up to 30 tons capacity handle the biggest jobs you have. Straddling I-beams, pipe, slabs and huge pallet loads of materials, they are extremely versatile.

How would it get there without this Gerlinger?

Moving 10,000-pound mixers more than a hundred yards from production to storage posed a few cost and manpower problems for this metalworking plant. They were solved with a Gerlinger Model S-15 Fork Lift Truck rather than erect extensive conveying equipment.

Now one man speeds the mixers from factory to storage on Gerlinger standard forks. 7½-ton lift capacity makes it a powerful mass-handler for all types of plants. Its pivotal steering, counter-active weight distribution and positive fingertip controls make this unit—like all Gerlinger lift trucks—as easy to maneuver as your family car.

New data folders are available to show you many ways to benefit with Gerlinger equipment. Send coupon for the specs most widely used in the metalworking industry.

Leaders for 39 years in building
Fork Lift Trucks, Tractors and Carriers

TOWMOTOR THE ONE-MAN-GANG **-GERLINGER***

*Gerlinger Carrier Co., Dallas, Oregon, is a subsidiary of Towmotor Corporation, Cleveland, Ohio

☐ Send free Gerlinger Fork Lift Truck literature with specs.

☐ Send free Certified Job Studies relating to the metalworking industry.

Name_____

Company_____

Address_____

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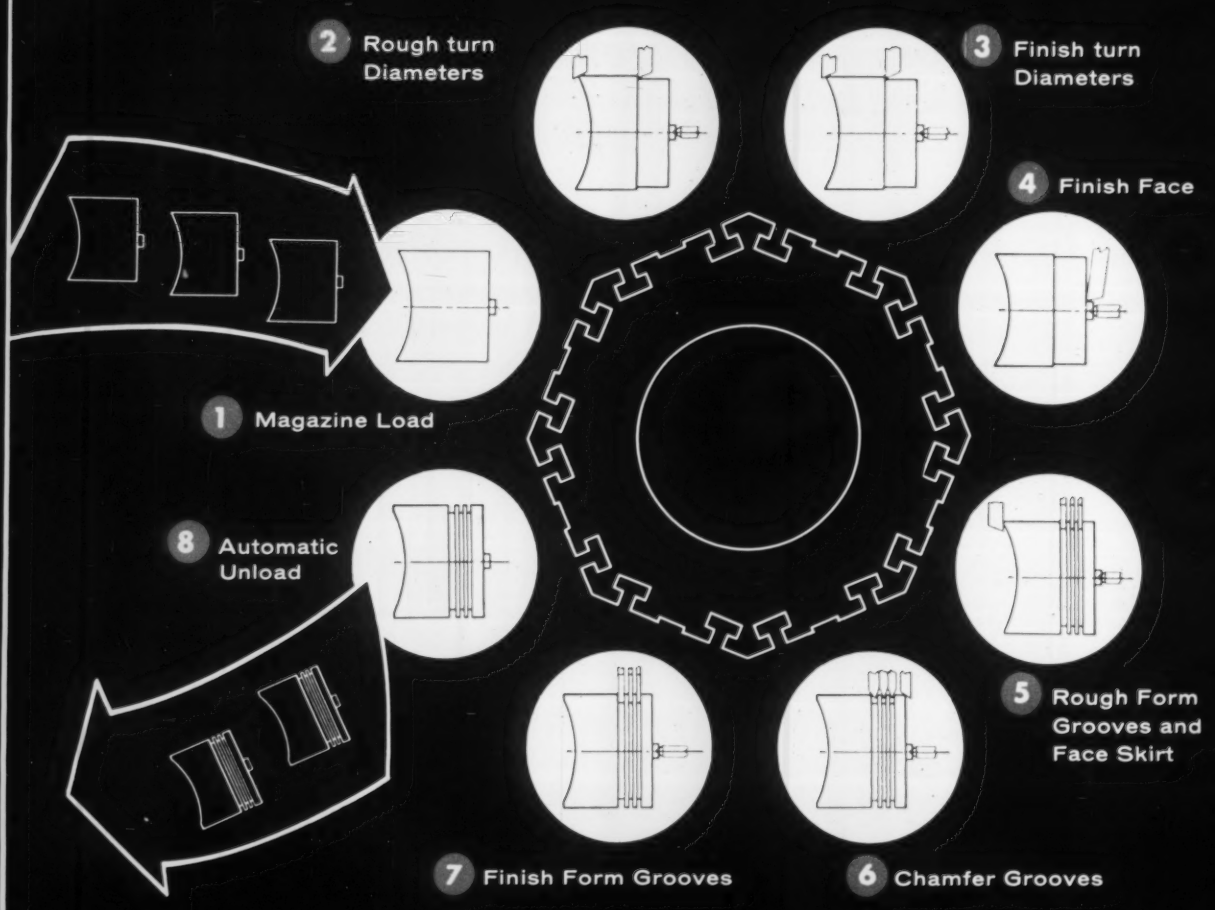
Mail to **GERLINGER CARRIER CO.**, Dallas, Oregon

here is

circumferential automation

at work . . .



Here's an example of Circumferential Automation integrated into an automated production line. Castings are conveyed to the magazine which loads the machine. After machining (16 operations in 8 seconds) is completed the piston is automatically unloaded—carried on to assembly.

... Automatic Load—Unload Accessories INTEGRATE

circumferential automation*

and in-line automation

* Each spindle of an Acme-Gridley Automatic is a work station where a number of machining operations can be performed. From the time the work piece is loaded into the spindle it is never let go; indexes from station to station where pre-sequenced operations are carried on without manual attention. Upon completion workpiece is released at the unloading position and is subsequently transferred to the line. Secondary operations are eliminated. This is automation . . . circumferential automation.

Acme-Gridley automatics equipped with magazine loading and unloading devices can easily be integrated into fully automated production and assembly lines. They provide maximum production flexibility and assure day-in, day-out operation with minimum human attention.

Let us show you how circumferential automation can go to work for you.—our representative will be glad to call without obligation.

National Acme

THE NATIONAL ACME COMPANY, 189 E. 131ST ST., CLEVELAND 8, OHIO • Sales Offices: Newark 2, N. J., Chicago 6, Ill., Detroit 27, Mich.

All 'round the world where there's work to be done
and time to be saved there's an Acme-Gridley to do it.

Name your load and speed combinations

We'll fit these bearings—or special types and sizes to your special needs.
Just fill in your application problem below—attach to your letterhead and mail.

THE SCHATZ MANUFACTURING COMPANY, Poughkeepsie, N. Y.
Here's our bearing problem. What do you suggest?

APPLICATION_____

LOAD (radial, thrust or both)_____

SIZE_____

SPEED_____

LIFE FACTOR_____

OPERATING CONDITIONS_____

SPECIAL CONDITIONS_____

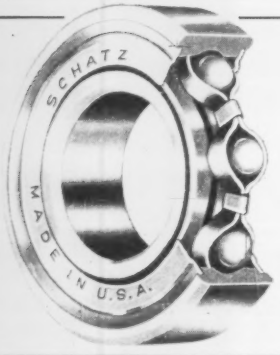
Name_____ Title_____

Company_____

Address_____

City_____ Zone_____ State_____

Schatz makes the most varied line of Ball Bearings to fit your needs



"Functional Precision" Ball Bearings—BR series

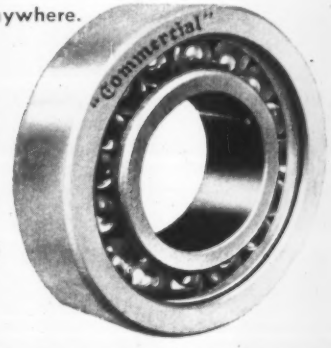
One piece race type with ball cage. Designed to give all the precision you require under certain ratios of load, speed and life expectancy. Available in open type, single or double shielded, single or double sealed with Schatz patented low friction plastic seal. Or with one shield and one seal on special order.

23 sizes from $^{3}/_{16}$" to 1"—6 types in each size + specials

"Commercial" Ball Bearings—The most complete and varied line anywhere.

UNGROUND BALL BEARINGS "TYPE A"—Every standard type—radial, thrust and radial thrust.

GROUND BALL BEARINGS "TYPE B"—Used and recommended where greater accuracy and smoother running qualities are needed and where loads are heavier and speeds higher.



1033 sizes to match your Bearing Application Needs

SCHATZ
BALL BEARINGS

THE SCHATZ MANUFACTURING COMPANY • Poughkeepsie, New York

MINUTEMAN!

Your steel service center starts delivery even as you place your order!

In every way, your local steel distributor is geared to keeping production lines rolling.

He's ready to rush the amount, quality, size and shape of steel to meet almost any conceivable demand—on the double. He's your on-the-spot insurance against the plant shutdowns and lost contracts that can be caused by in-plant steel shortages.

On a regular basis, his facilities, stocks and fast delivery service can be integrated with your production needs. He is, truly, the service center of the steel industry. And he's only a phone call away.

Call him for any quantity of Weirkote continuous-process zinc-coated sheets, Weirzin electrolytic zinc-coated sheets, hot- or cold-rolled sheets or any type of steel you may need for any type of production job.

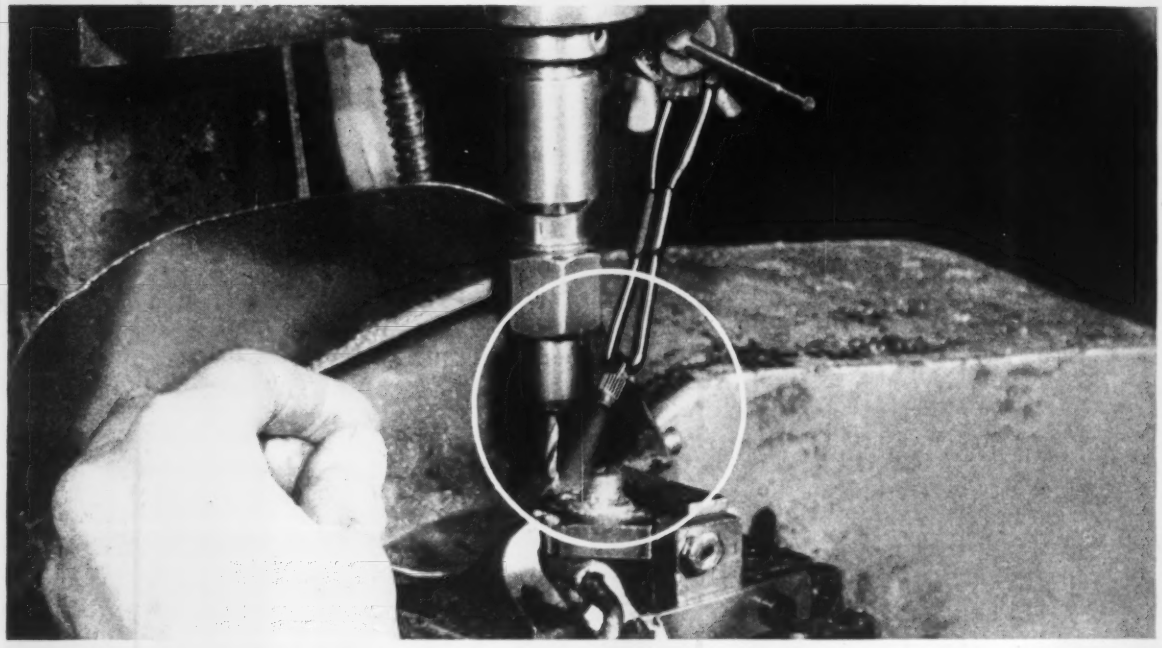
WEIRTON STEEL COMPANY

WEIRTON STEEL COMPANY

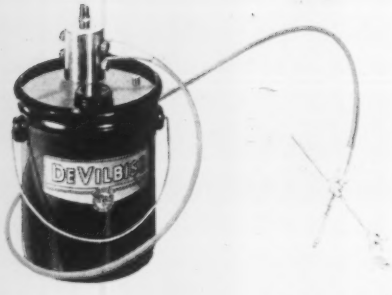
WEIRTON, WEST VIRGINIA

a division of

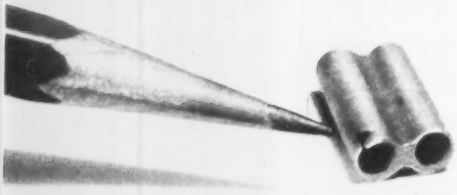
NATIONAL STEEL CORPORATION



$40 Multi-Mister doubles tool life —holds closer tolerances!



Multi-Misters available with one or five gallon tanks, one to four nozzles. All models complete and ready for installation.



When overheated drill becomes oversized, "run-out" occurs and thin walls buckle. Mist-cooled drill cuts a perfect hole.

Cooled and lubricated by fine spray mist, tools cut better; last longer!

Heat—the principal cause of short life for forming and cutting tools—can now be effectively controlled on many of your toughest jobs with Multi-Mister—DeVilbiss' new mist-cooling development.

DeVilbiss' Multi-Mister directs a chilling blast of air and coolant to keep temperatures down two ways: (1) the jet of expanding air dissipates tool heat instantly, and (2) the mist lubricates cutting edges to reduce friction.

The results: longer tool life, finer surface finishes, closer dimensional tolerances, fewer shutdowns to sharpen and reset tools.

A call to your DeVilbiss representative will supply you with even further advantages of mist cooling, plus a free demonstration of Multi-Mister on your own machines! Call him today; or write us direct for Multi-Mister Bulletin BC 1025.

THE DEVILBISS COMPANY
Toledo 1, Ohio

Barrie, Ontario • London, England
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FOR BETTER SERVICE, BUY
DEVILBISS

call KE for plant expansion or new facilities

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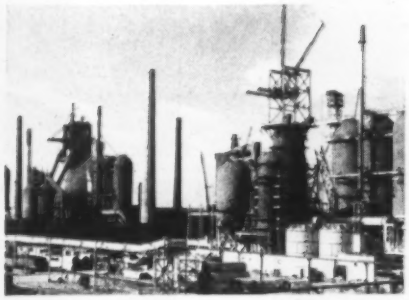
INGENUITY

has made KE a major engineer-contractor serving Steel



At India's mammoth Tata works, at Jones & Laughlin, at Kaiser Steel—Kaiser Engineers' ingenuity advances the art of making steel.

KE can take your development thoughts from a gleam in your eye through start-up. KE performs any part—economic analysis, plant location, engineering, design, procurement, expediting, construction. One contract can cover all.

For your next plant or expansion, take advantage of KE's cost-saving ingenuity and wide experience in Steel.

KAISER ENGINEERS

engineers—contractors
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Division of Henry J. Kaiser Company • Oakland 12, California • New York, Pittsburgh, Washington, D.C., Buenos Aires, Calcutta, Dusseldorf, Montreal, Rio de Janeiro, Sydney, Tokyo

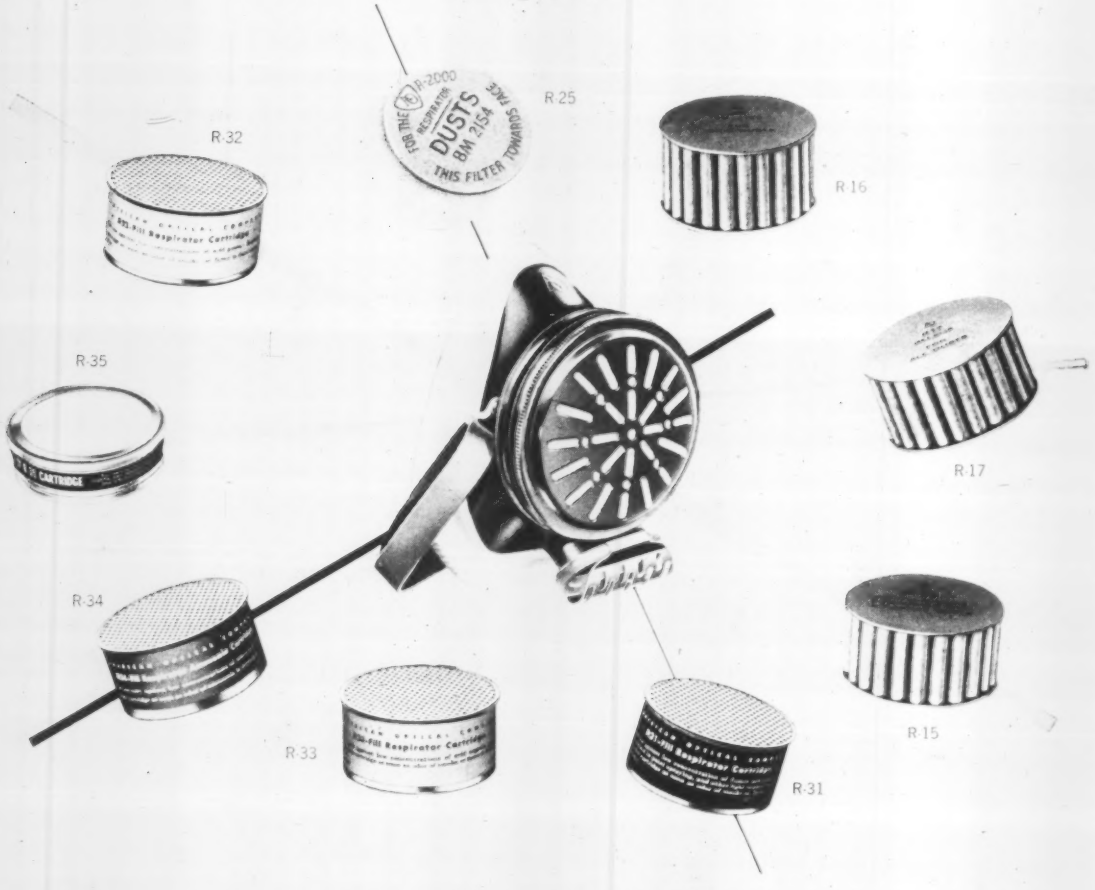
4364

~~8~~ in 1

Now...9 in 1!

Respirators

Inventory Saving, Cost Saving AO R-2000 Series Respirator



Yes, with the addition of the NEW R-35* Cartridge (and other cartridges and filters), the AO R-2000 can be quickly converted to one of nine respirators for protection against a multitude of dust, gas and vapor hazards — singly or in combination.

AO Sweatbands keep workers cool, comfortable, efficient, prevent accidents. Check your stocks.

American Optical
COMPANY
SAFETY PRODUCTS DIVISION

*Recommended for exposures to low concentrations of All Dusts not significantly more toxic than lead and Organic Vapors simultaneously.

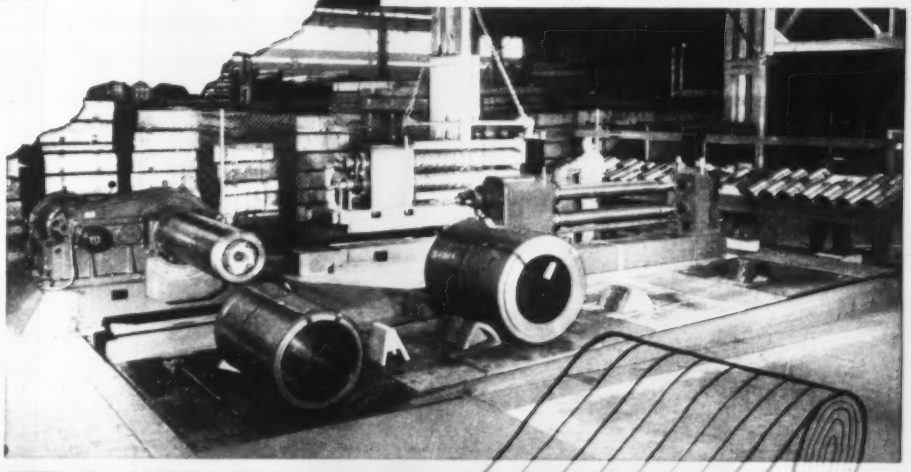
Your nearest American Optical Safety Products Representative can supply you. Always insist on AO trademarked safety products.

SOUTHBRIDGE, MASSACHUSETTS
Branches in Principal Cities

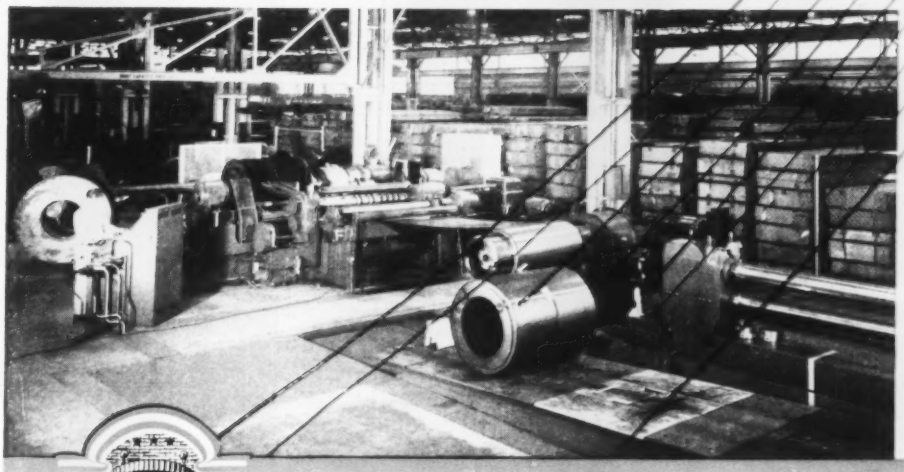
Step Up Production with Stamco Coiling Lines

Stamco Slitting and Coiling Lines will step up your production because they are designed to meet your particular specifications. Years of experience have led to the development of equipment that will meet every slitting and coiling requirement. Stamco slitting and coiling lines are now efficiently handling coils from 500 to 60,000 pounds and are designed to give dependable, maintenance-free service.

Write us, stating your requirements . . . we'll gladly give complete details—no obligation.



View shows coil and traverse, coil pay off reel, coil loading ramp and detachable slitter head.



Overall view of coiling line from entrance end.

STAMCO, Inc., New Bremen, Ohio

When you buy from Ohio Seamless

YOU PRESS THE BUTTON
OHIO SEAMLESS
DOES THE REST

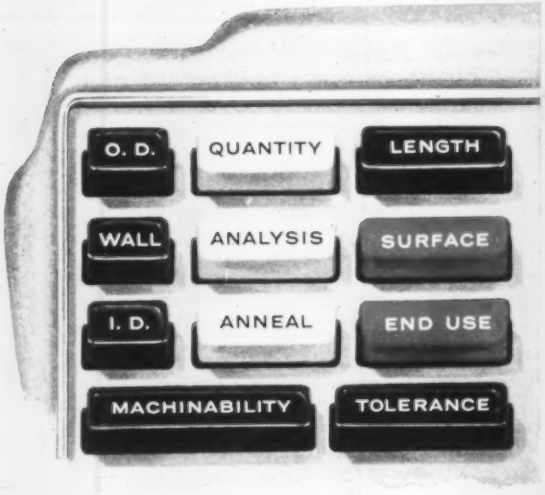
Buying steel tubing from Ohio Seamless doesn't cost—it *pays*. Our minimum quantities are generally smaller than you may realize . . . often as small as 100 to 150 feet, in certain seamless grades and sizes.

When you buy from us, you're dealing with tubing *experts* . . . men who can recommend the *exact* Ostuco Tubing to suit your product and processes. There's no compromise on analysis, size, anneal, etc.

Advantages of buying from Ohio Seamless multiply, the closer you examine them. Our single-source service eliminates headaches of interplant shipments . . . possible errors . . . multiple purchase orders and invoices. Ohio Seamless keeps your production lines humming because you get *precisely what you want*.

For proof, contact our nearest sales office or the plant at *Shelby, Ohio—Birthplace of the Seamless Steel Tube Industry in America.*

AA 2118



SALES OFFICES: BIRMINGHAM • CHARLOTTE • CHICAGO (Oak Park) CLEVELAND • DAYTON • DENVER • DETROIT (Ferndale) • HOUSTON LOS ANGELES (Lynwood) • MOLINE • NEW YORK • NORTH KANSAS CITY PHILADELPHIA (Wynnewood) • PITTSBURGH • RICHMOND • ROCHESTER ST. LOUIS • ST. PAUL • ST. PETERSBURG • SALT LAKE CITY • SEATTLE TULSA • WICHITA

CANADA: RAILWAY & POWER ENGR. CORP., LTD.

EXPORT: COPPERWELD STEEL INTERNATIONAL COMPANY 225 Broadway, New York 7, New York

FIFTY YEARS
OSTUCO SHELBY, OHIO
OSTUCO TUBING
1908 1958

OHIO SEAMLESS TUBE DIVISION
of Copperweld Steel Company SHELBY, OHIO

Seamless and Electric Resistance Welded Steel Tubing • Fabricating and Forging

People buy Scott Wipers for many reasons:

Mr. R. J. Stuart, Jr., Vice President, Messinger Bearings, Inc. says: "Scott Wipers meet our needs very well. We use them for many different wiping jobs, such as the wiping of finished bearings before inspection, wiping grease and dirt from turret lathes, keeping the hand wheel of a 144" boring mill clean plus all general clean-up wiping.

Messinger Bearings likes the safety and sanitation of Scott Wipers!

Messinger Bearings, Inc., Philadelphia makes precision bearings for the steel and machinery manufacturing industries, bearings for radar units, shipboard gun turrets, air force and army equipment. They've used Scott Wipers for the past two years. Mr. R. J. Stuart, Jr., Vice President, says: "There's a danger of metal chips in cloth wipers—chips that might cut an employee's skin, cause infection. We introduced Scott Wipers to eliminate this hazard, and to keep our men happy." Soft, absorbent two-ply paper Scott Wipers are always fresh from a box. They're disposable after use. At Messinger, Scott Wipers have helped improve morale, plant housekeeping and inspection work because the *uniformity* of Scott Wipers increases wiping efficiency.

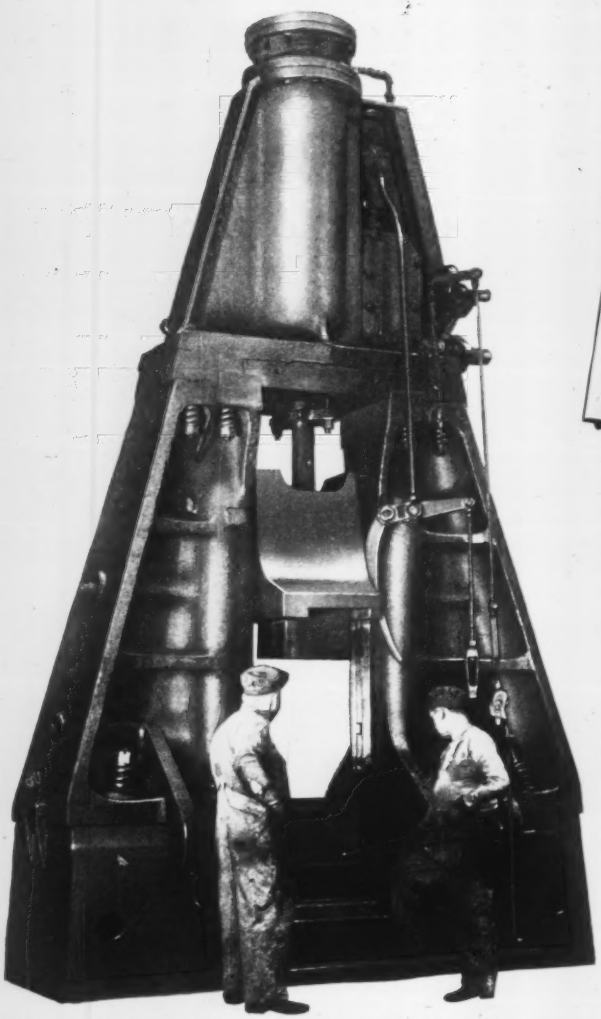
Your Scott distributor has the complete Messinger Bearings case history and many others, covering many fields. He's in the Yellow Pages under "Paper Towels." Or write: Scott Paper Company, Dept. S-85, Chester, Pennsylvania.

SCOTT PAPER

See "Father Knows Best" on NBC-TV.

Do your Steam Hammers look like this?

TIME TO MODERNIZE



CHAMBERSBURG STEAM DROP HAMMERS

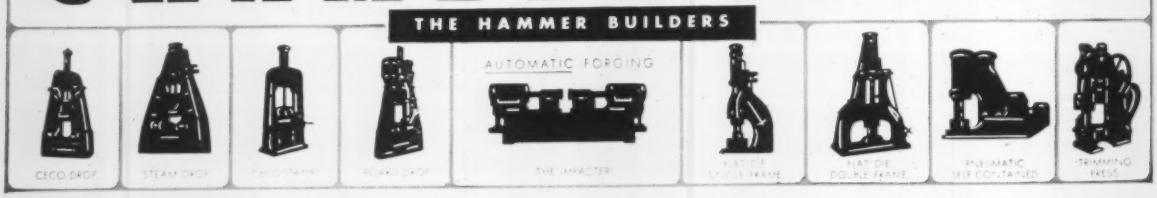
have kept pace with modern forge shop requirements. With Chambersburg Steam Drop Hammers you get more forging per blow and more forgings per hour for higher production. And—at the same time you'll find production savings in lower power consumption, less downtime, better die alignment. Every feature of Chambersburg Hammers is designed to produce forgings at the lowest possible cost per piece.

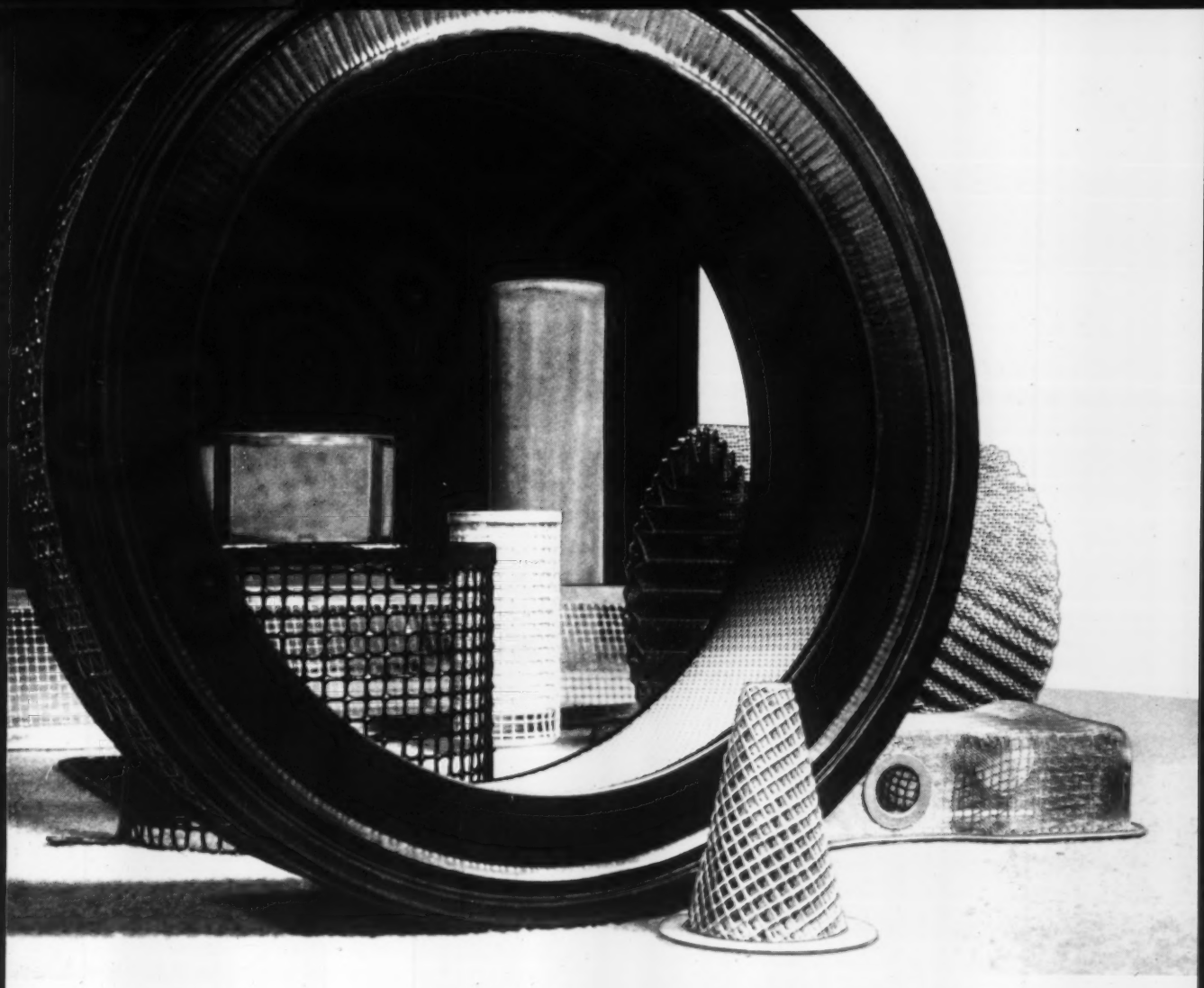
Write for Bulletin

CHAMBERSBURG ENGINEERING COMPANY . . . . . CHAMBERSBURG, PA.

CHAMBERSBURG

THE HAMMER BUILDERS





How to **USE** wire cloth at lower cost

Today many companies are able to make wire cloth components, like these shown here, at lower cost than ever. The answer lies in new services, new developments worked out by the *Reynolds Wire Division* of National-Standard . . . ideas aimed at the more effective, less wasteful *use* of industrial wire cloth. For example . . .

5 SUGGESTIONS:

1. Check on wire cloth rolls 2 to 8 times normal length . . . for 2 to 8 times as much production in a single run. Fewer shutdowns. Less handling.

2. Consider pre-slit widths, plain or with woven-in reinforcement, as narrow as 1 inch or less, to meet your requirements exactly with minimum handling and waste.

3. Evaluate Reynolds' new palletized packaging. Less chance of damage. Faster, easier handling on arrival, in and out of storage and right to production operations.

4. Look into the many different weaves, meshes, metals, finishes and coatings . . . some unique with Reynolds . . . to make sure of the optimum specification for your requirement.

5. By all means take advantage of Reynolds' engineering and analytical service . . . nation-wide and unmatched in the industry. Time and time again it contributes to a better finished product at lower cost.

NATIONAL NS NATIONAL-STANDARD Company **STANDARD**

DIVISIONS: NATIONAL-STANDARD, Niles, Mich.; *fine wire, stainless, music spring and plated wires* • WORCESTER WIRE WORKS, Worcester, Mass.; *music spring, stainless and plated wires, high and low carbon specialties*
WAGNER LITHO MACHINERY, Secaucus, N. J.; *metal decorating equipment* • ATHENIA STEEL, Clifton, N. J.; *flat, high carbon spring steels* • REYNOLDS WIRE, Dixon, Ill.; *industrial wire cloth*

Here's a NEW WELDING TORCH that's WATERTIGHT... built for HEAVY-DUTY SERVICE ...yet weighs only 7 OUNCES!

This new HELIARC HW-18 Hand Welding Torch weighs only 7 ounces, making it easy for you to handle, less tiring. The special one-piece water cooling channel eliminates sources of leakage. And it's made for rugged, heavy-duty service.

YOU GET BETTER SHIELDING WITH LESS GAS

Improved design of collet body and closer electrode fit assure uniform argon flow, without jetting or turbulence.

GIVES YOU RUGGED SERVICE

Torch body is Fiberglas-reinforced phenolic for greater resistance to heat and thermal shock. Handle is tough, polished plastic. Gas cups have 4 times the impact strength of ordinary cups.

LEAKPROOF

Molded, one-piece water cooling passage has no joints to permit leakage—no water drip to contaminate welds.

◀ Diagram shows leakproof, one-piece water cooling passage in LINDE's new HELIARC HW-18 Hand Welding Torch.

EASY, MORE ECONOMICAL MAINTENANCE

Collets, collet bodies, cups and caps are interchangeable with those of your HW-17 Series 2 Torch. All couplings have standard IAA connections, and adaptors are included. Your production costs are lowered, too, for the new HW-18 saves time in hard-to-reach spots. Torch is designed for continuous 300-amp service, a-c or d-c.

ARGON SHUT-OFF VALVE

(Optional) saves time, steps and argon.

See and try this new HELIARC HW-18 Torch! For a demonstration, mail coupon today. Or call your distributor or nearest LINDE office. LINDE COMPANY, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, N. Y. Offices in other principal cities. In Canada: Linde Company, Division of Union Carbide Canada Limited.

Dept. ST54, LINDE COMPANY, Division of UCC
30 East 42nd Street, New York 17, N. Y.

Please advise me where and when I can examine and try out the new HELIARC HW-18 Hand Welding Torch.

NAME

COMPANY

STREET

CITY ZONE STATE

FOR THE BEST IN ELECTRIC WELDING LOOK TO *Linde* TRADE MARK

UNION CARBIDE

The terms "Linde," "Heliarc," and "Union Carbide" are registered trade-marks of Union Carbide Corporation.

Quality in Ascendancy

The superiority of the vast number of products that are—and can be made from Roebling Cold Rolled Flat Spring Steel is a fact known throughout all industry.

You pay for mechanical and dimensional uniformity when you buy flat spring steel...you *get* it when you buy Roebling.

For information on how our products can help *yours*, write Wire and Cold Rolled Steel Products Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey.

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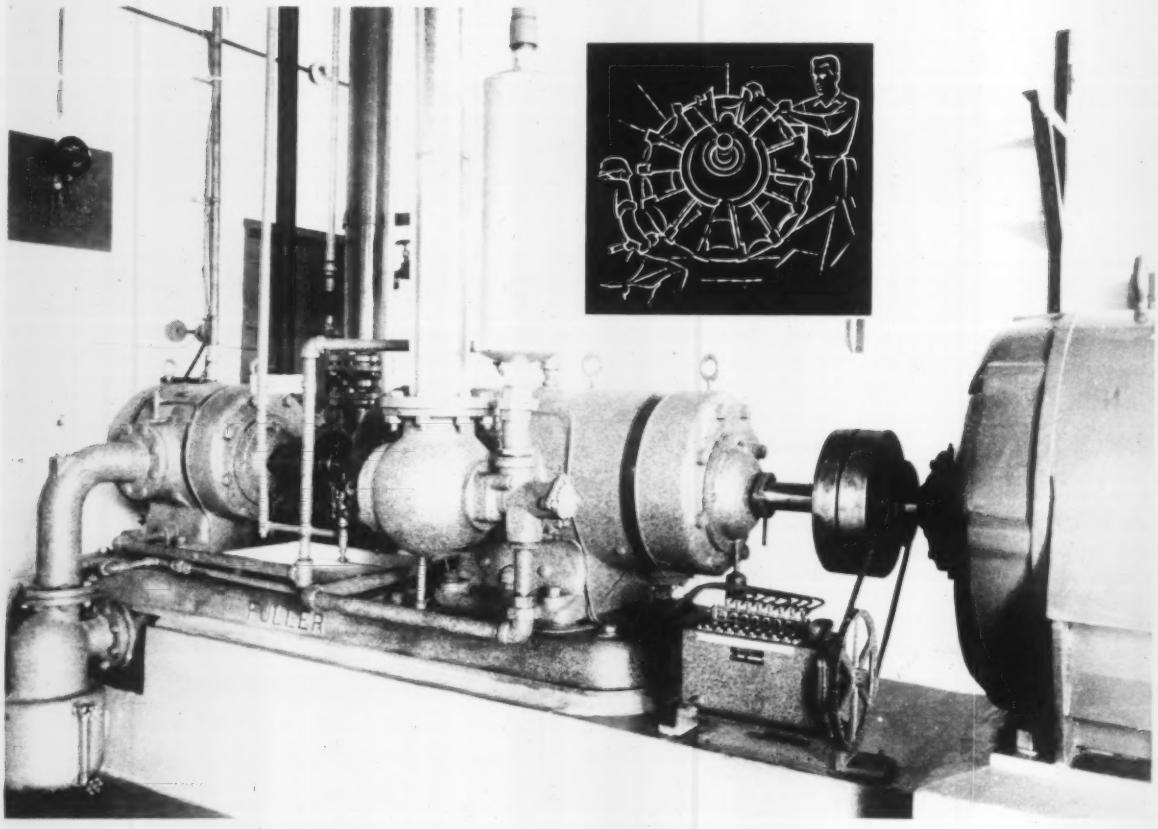
Subsidiary of The Colorado Fuel and Iron Corporation

Roebling...Your Product is Better for it



WHY DID AIRWORK SPECIFY A FULLER AIR COMPRESSOR?

Here's what the Vice President-Operations of Airwork Corporation, one of the nation's leading aircraft overhaul companies, writes about Fuller Model C-150-150H Rotary Air Compressors.

"We were running out of air capacity, and had decided that we would like to get rid of the maintenance problems inherent in a piston type air compressor.

"The Fuller compressor with its fewer moving parts and favorable price range met our basic requirements.

"We then checked on Fuller compressor performance through our close contacts with a leading manufacturer of aircraft engines. Their opinion was very favorable. We think Airwork has made the right decision."

Here are the features that sold Airwork on a Fuller Compressor:

- Wide seal between rotor and bottom of cylinder, assuring high volumetric efficiency.
- Rotary design assuring vibration-free flow of air.
- Direct drive.
- Compact space-saving installation.
- Simple foundation.
- No valves to leak or seats to grind.
- Few moving parts, keeping maintenance time to minimum.
- Designed for continuous duty service

When your plant needs reliable air power, call on Fuller. To get all the facts on Fuller Rotary Compressors for capacities up to 3300 C.F.M. and pressure to 125 pounds, write today.

Fuller

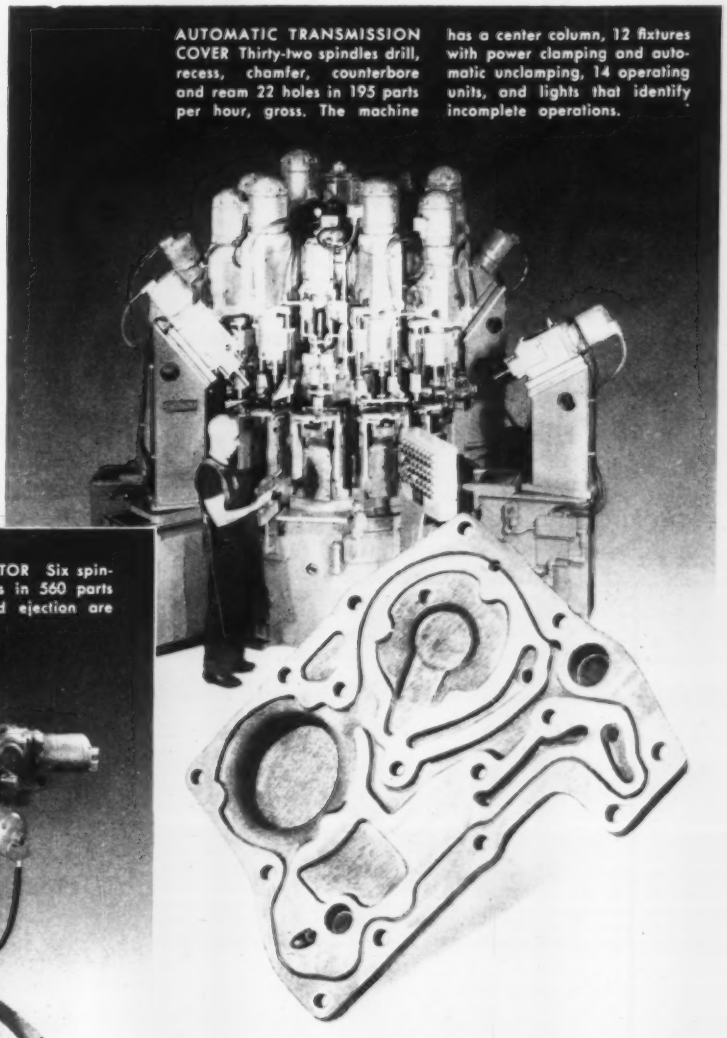
FULLER COMPANY GENERAL AMERICAN

FULLER COMPANY
160 Bridge St., Catasauqua, Pa.
SUBSIDIARY OF GENERAL AMERICAN TRANSPORTATION CORPORATION
Birmingham • Chicago • Kansas City • Los Angeles • San Francisco • Seattle

PIONEERS OF HIGH-EFFICIENCY VANE TYPE ROTARY COMPRESSORS SINCE 1930

"Visit us at the National Materials Handling Exposition, Public Auditorium, Cleveland—June 9-12, Booth No. 613-615."

. . . whether your drilling and tapping jobs are SIMPLE or COMPLEX



AUTOMATIC TRANSMISSION COVER Thirty-two spindles drill, recess, chamfer, counterbore and ream 22 holes in 195 parts per hour, gross. The machine has a center column, 12 fixtures with power clamping and automatic unclamping, 14 operating units, and lights that identify incomplete operations.

COUNTERWEIGHT FOR REFRIGERATOR Six spindles spot, drill and tap two holes in 560 parts per hour, gross. Unclamping and ejection are automatic.

. . . YOU PRODUCE MORE GOOD PARTS, MONTH AFTER MONTH . . . ON A

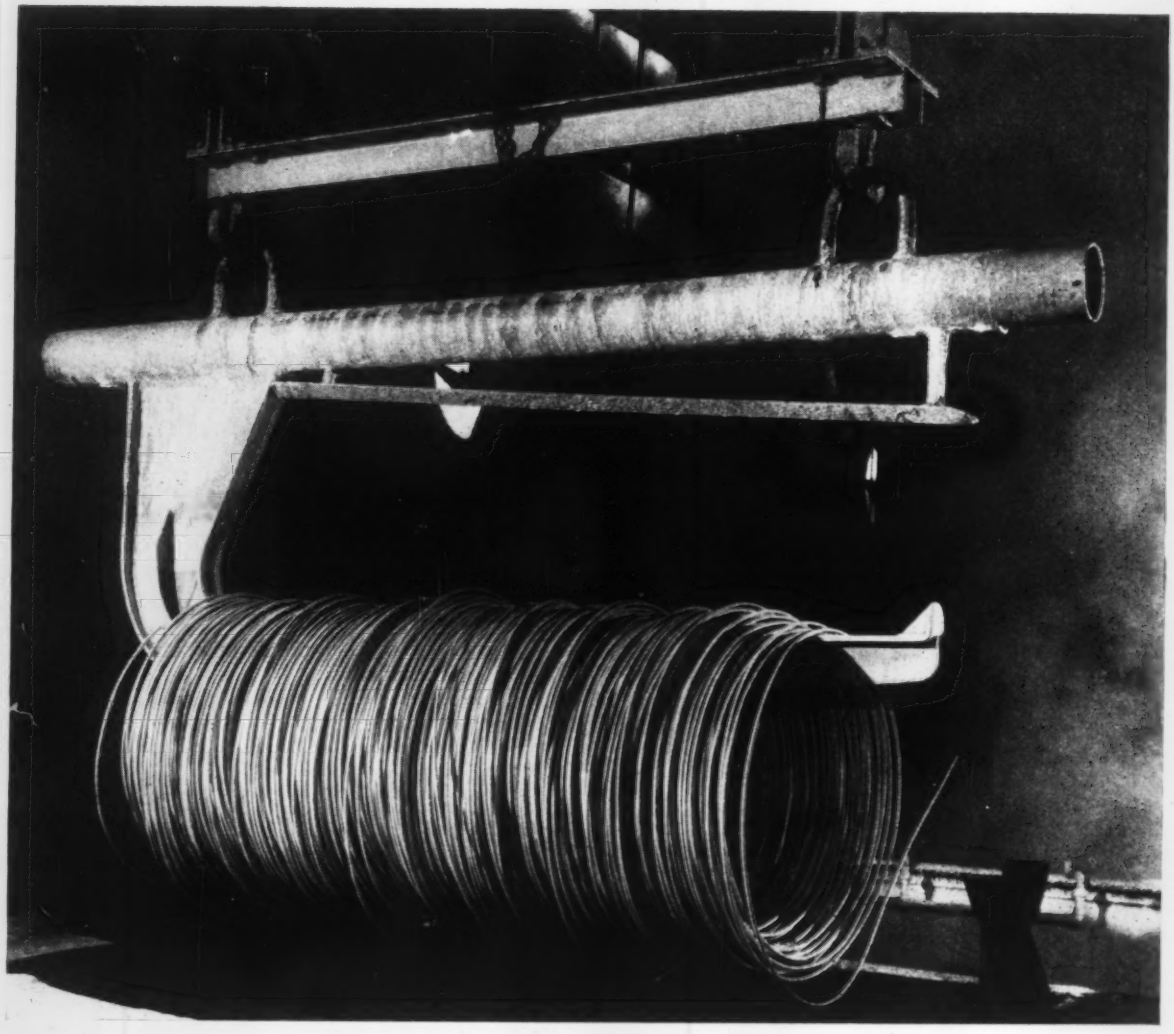
KINGSBURY

One job is fairly simple, one complex, but both parts are produced at a high production rate with few rejects and little down time. Good basic design is the main reason. Each job had careful study so that the fixtures would hold the parts firmly and accurately and the tools operate as required.

Before we shipped these machines, we ran sample parts that gaged perfectly. When each customer received his machine it was ready to produce. Rugged construction will keep them producing month after month without trouble.

We've been building successful machines like these for 38 years. Ask us to quote one of your jobs. Kingsbury Machine Tool Corporation, Keene, N.H.

KINGSBURY INDEXING AUTOMATICS for high production drilling and tapping



Closeup of a Monel pickling hook in the Wire Draw Department, the Timken Roller Bearing Co., Gambrinus Plant, Canton, Ohio. Pickling is in sulphuric acid up to 16%, at 180°F. Loads vary from 1700 to 2700 pounds.

9 years of acid service...
This Monel hook looks as good as new!

See this hook? For 9 years it's been dipping wire into sulphuric acid solution – no repairs, no letup.

When the Timken Company started up this pickling line in 1949, specifying engineers wanted pickling hooks made of a strong, acid resisting metal. They chose Monel* nickel-copper alloy. It has excellent corrosion resistance – can't weaken by dezincifying.

This fabricated hook will last a lot longer, too

It's stronger than structural steel. If damaged, it's economically repaired.

Monel alloy saves replacements in other pickling equipment, too. In slings, baskets, chains, tie rods, Monel alloy's unique combination of corrosion resistance... strength... ductility... easy welding... really pays off.

You'll find a lot of useful information about Monel alloy pickling equipment in the illustrated handbook, "Equipping the Pickle House for Greater Production at Lower Cost." Write for it. *Registered trademark

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street New York 5, N. Y.

INCO NICKEL ALLOYS

STEEL

May 26, 1958

Metalworking Outlook

Chrysler Institutes Management Pay Cut

On top of closing various operating units and reducing personnel, Chrysler Corp. has moved to deduct one to three weeks' pay of officers and executives this summer to cut costs. About 2000 management men will be affected. Company officers will forfeit three weeks' pay—one in July, one in September, and one in November. Executives making $15,000 and over will lose two weeks' pay—one in July, one in September. Those making between $10,200 but less than $15,000 will be cut one week—half in July and half in September. In announcing the deductions, Chrysler's administrative committee served up this sweet with the bitter: "There is a good and promising future for the auto industry and for Chrysler Corp. in particular, which far transcends this temporary dip in the business cycle."

Look for Auto Union To Meet Deadline

Key locals of the United Auto Workers have been notified not to strike even if present contracts are allowed to expire, but it still looks as if the union will sign when the deadline is reached. Some observers think the companies will demand a two-year contract if the final package is between 11 and 13 cents. However, the odds seem to favor a one-year pact. Rumors: The union will get more SUBenefits; skilled workers will get at least an extra penny in the wage differential; and retired workers will get a better deal.

Steel Fabricators Face Wage Hike

Going on the theory that a recession is no time to take a backward step, the USW is expected to ask fabricator shops for a wage package totaling 15 to 16 cents this year. The union says it has 214,631 members under 1199 contracts in the U. S. and 75,000 members in Canada. Agreements in both countries expire this year. The aim of the plan, which is said to have the approval of the USW wage policy committee, is to match boosts workers in basic steel will get under escalator clauses on July 1. It's also reported that the union will seek raises of 27.2 cents in valve, fitting, pump, and compressor plants.

Rising Consumer Prices No Anomaly

Many believe that continued gains in the consumer price index during a recession are something new. Not so, Prof. Jules Backman of the New York University School of Commerce told the annual meeting of the National Industrial Conference Board. "In five recessions during the last 35 years, the index remained unchanged or rose three times and declined moderately twice," he said. "During one of the periods of decline, the index rose for the first seven months before turning downward." Referring to the current recession, he concludes: "Administered pricing per se has not prevented price declines, and market pricing per se has not prevented price advances."

NAM Sees Harm in Kefauver-Patman Bill

If adopted, the Kefauver-Patman Bill would prevent a business from meeting a competitor's lower price. That, says the National Association of Manu-

facturers, would hurt consumers as well as businessmen. It explains: "The practical effect of the . . . bill is to tell every businessman, large or small, that if he is being undersold . . . , he cannot offer the customer the same low price unless he also grants the reduction to all other customers in his competitive area." If told he must do that, "the average manufacturer is likely to find such an action would be ruinous, and so make no reduction at all."

Prediction: U. S. Will Keep Atomic Power Lead

The U. S. will stay in front in the race for development of atoms for peace through placing in operation of many large nuclear powerplants by 1960-62, predicts Robert W. Hartwell, general manager, Power Reactor Development Co., Detroit. The plants will be of different types and designs, but that is not the result of a "hit or miss" program, he says. On the contrary, diversification will permit a selection of the most desirable designs for future reactors, Mr. Hartwell points out.

Future Bright, but Plants Underpowered Now

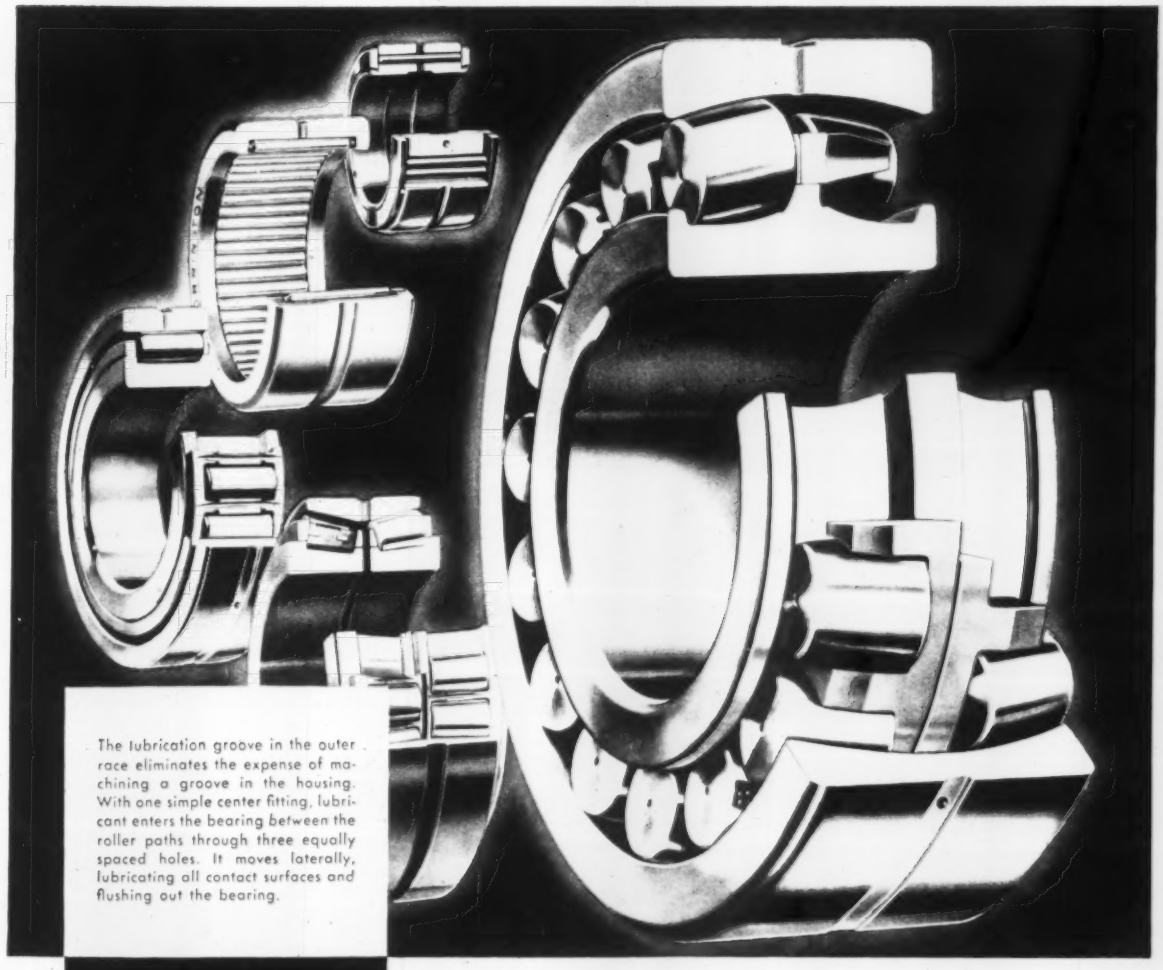
In the next 20 years, our standard of living will be 50 per cent higher than it is now, says A. C. Monteith, vice president in charge of Westinghouse Electric Corp.'s apparatus products divisions. Technological advances will be responsible, such as direct reduction of ores in the iron and steel industry. At present, however, hundreds of companies have inadequate electric power for their manufacturing facilities, and thousands of firms are using material handling equipment based on concepts that were obsolete in the 1930s, he asserts.

Warehouses Stock Ingot Aluminum

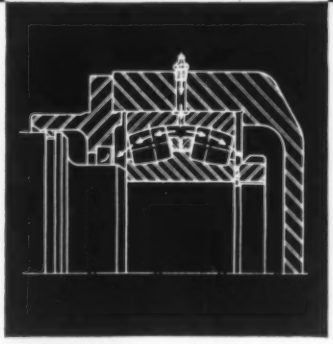
Lederer Terminals, Cleveland, and Toledo Marine Terminals Inc., Toledo, Ohio, will distribute aluminum ingots to local fabricators. The new marketing method was originated by Aluminium Ltd., Montreal, Que. Ingots are to be shipped via the St. Lawrence Seaway.

Straws in the Wind

The number of workers collecting unemployment pay decreased 70,900 in the week ended May 3. This was the third successive weekly decline and the largest since the recession began . . . By the year 2000, 100 million small cars powered by gas turbines may be crowding U. S. highways, says D. P. Barnard, Indiana Standard co-ordinator for research . . . A bill sponsored by Sen. John M. Butler (R., Md.), would allow government insured mortgages on foreign ships built in the U. S. . . . Generating capacity of U. S. private utilities topped 100 million kilowatts when Tucson Gas, Electric Light & Power Co. put a new 75,000-kw generator in its Tucson, Ariz., plant.



The lubrication groove in the outer race eliminates the expense of machining a groove in the housing. With one simple center fitting, lubricant enters the bearing between the roller paths through three equally spaced holes. It moves laterally, lubricating all contact surfaces and flushing out the bearing.



A time-proved lubricating method now available on Torrington Spherical Roller Bearings

The circumferential groove in the outer race has met the test of experience in many Torrington Bearings, including Heavy Duty Needle Bearings, Aircraft Type Needle Bearings, Tapered and Radial Roller Bearings. Now the circumferential lubrication groove is available in Torrington Spherical Roller Bearings.

This design feature makes it possible to introduce lubricant *between* the roller paths without the expense of machining a groove in the housing. This groove is proportioned to provide generous lubricant flow capacity. Lubricant moves through the roller paths, flushing used lubricant and contaminants away from bearing contact surfaces.

Torrington Spherical Roller Bearings in many sizes may be ordered with this groove as desired at no additional cost. For further information, see your Torrington representative or write: **The Torrington Company, South Bend 21, Ind.—and Torrington, Conn.**

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Armco 17 Stainless Steel Sheets Now Cost 20% Less Than Type 302

In Many Applications, Type 430 delivers the most for the least

If you now use chromium-nickel stainless steels in products that don't come in contact with corrosive chemicals, sea water, or salt air, there's a chance that economical Armco 17 (Type 430) Stainless Steel can bring you substantial savings.

Today, for example, the price base of Armco 17 (17% chromium) Stainless Steel sheets is about 20 per cent less than that of Type 302. That's a saving of 11¼ cents a pound—$225 a ton! The reason is that Armco 17 contains no costly nickel.

Ideal for many products

If you have hesitated to specify chromium-nickel stainless steels for your products because of cost, it may pay you to investigate economical Armco 17.

Typical examples of products that can be improved with this low-cost stainless steel include architectural trim, appliance parts, tableware, counter tops, hospital equipment, sinks and drainboards. In addition, its resistance to heat scaling and strength at high temperatures have made it ideal for heat exchanger parts, combustion chambers, and similar items.

Mail the Coupon for Details

Armco 17 Stainless is readily available in both sheet and strip. Why not check to see if this economical stainless steel is suitable for *your* products? It is also supplied in bar, wire and billets—at lower cost too. Just fill in and mail the coupon for complete information. There's no obligation.

Other Armco Steels for top-quality products include:

ALUMINIZED STEEL
Cold-Rolled and Hot-Rolled
Cold-Rolled PAINTGRIP®
Electrical Steels
Enameling Iron
High Strength Steel
Long Ternes
Stainless Steels
Steel Tubing
ZINCGRIP®
ZINCGRIP PAINTGRIP®

New steels are born at Armco

ARMCO STEEL CORPORATION, 2338 Curtis St., Middletown, Ohio

Can we save money by making these parts from Armco 17 Stainless? We now use

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ARMCO STEEL

Armco Division • Sheffield Division • The National Supply Company • Armco Drainage & Metal Products, Inc. • The Armco International Corporation • Union Wire Rope Corporation • Southwest Steel Products

The Depreciation Story

Tell Congressmen

We believe that Congressional apathy is the greatest obstacle to the long overdue revision of this country's depreciation laws.

While Congress may authorize temporary or emergency depreciation help for production facilities, the majority of members appear reluctant to face up to the task of overhauling our archaic system.

Many congressmen claim "there's not enough time left in this Congress to consider permanent reform." Most of the bills introduced thus far call only for temporary relief.

The general indifference of many legislators, as indicated in a series of interviews by this magazine's editors, results from:

1. Their fear that the government will lose revenue.
2. Their belief that depreciation reform would benefit only "big business."
3. Their belief that the issue lacks vote-getting appeal. (Personal and excise tax cut proposals are more popular.)
4. Their lack of understanding of the issue (by far the most important shortcoming).

Congressional thinking on the first three points could be changed by an understanding of the handicaps imposed by today's laws and regulations and the benefits that could be achieved by updating our national policy.

We suggest that it is your responsibility to help congressmen gain a more complete understanding of the problem.

How?

As individuals, invite your representatives and senators to your plant. Explain the hardships brought about by rigid and arbitrary regulations. Show them what you would do were it not for the penalties. Explain how new equipment purchases would create more jobs and larger payrolls.

Also tell the story to your employees. Point up the benefits and encourage them to join in the drive.

Also work through chambers of commerce, trade associations, or other organizations as groups to make more formal presentations. Ask small companies to participate. The small businessman, including the farmer, is more in need of updated depreciation laws than the giant corporation. The "big boys" are in a better position to cope with today's system because they have more adequate financing and more accounting and legal talent.

Many industrial leaders already have joined us in this drive.

We need all of you.

Walter J. Campbell

EDITOR

WASHED WASHERS

promote Clean workmanship

Clean hands do better work, result in cleaner workmanship on the assembly line. With washed washers, workers' hands stay clean. There is no grime, grease, graphite or other foreign matter to rub off on workers hands or on the work itself. Upholstery and woodwork is not soiled, metal components, painted and plated surfaces stay clean.

The new *washer washing* process, which also includes *rust resistant* treatment, recently introduced by Wrought Washer, is used on all popular sizes of U. S. Standard and S. A. E. Washers, on Rivet Burrs and Machinery Bushings, as well as most special washers and stampings. Add this new washing process to the consistent high quality for which Wrot Washers are noted and preferred . . . and you have a positive *Plus Value* at no extra cost.

If you use washers in your products . . . Wrot Washer can meet your requirements with every type, size, material and finish . . . and with quality that matches your own high standards. Write for Catalog No. 40.

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packaging shows you they're *clean*

• Not only does our new special washing process dress up the washers themselves, they are now put up in attractive 1-lb. and 5-lb. packages with strong, transparent Mylar windows . . . to let you see how clean they are.

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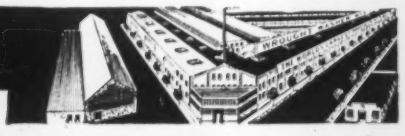


BENJAMIN F. FAIRLESS
President, AISI

D. S. HOLBROOK
President, Algoma Steel Corp. Ltd.

R. L. GRAY
President, Armco Steel Corp.

AISI Hits Tax Laws

"A MIDDLE ground approach is the right answer to our foreign trade problem."—R. L. Gray, president, Armco Steel Corp., Middletown, Ohio.

"WE MUST FIND the real causes for the recession, and, more importantly, the steps that will take us back to the main road as rapidly and soundly as possible. We see good indications that we may now be on our way."—Benjamin F. Fairless, president, AISI.

"DEPRECIATION is a critically important issue with you. The Canadian government has shown better understanding of the problem than has the U. S. government, I believe."—D. S. Holbrook, president, Algoma Steel Corp. Ltd., Sault Ste. Marie, Ont.

Those were the themes of the three main addresses at Thursday's (May 22) general session of the American Iron & Steel Institute in New York City.

Should We Have Free Trade?

"We should strive toward trade liberalization as our long range goal, but we must be cautious about it," asserted Mr. Gray. "We can't compete on a free trade basis unless we narrow the wide gap between our labor costs and those of foreign competitors," he warned.

Cause for Alarm—"The import situation is growing more painful every day. We can continue free trade or revert to protectionist policies," declared Mr. Gray. He listed these consequences of a return to trade restrictions:

- The possible loss of a big steel market. Export was fifth largest market last year. And exports of steel mill products exceeded imports by about 4 million tons.
- Raw material problems. We depend on foreign sources for chrome,

Top Steelmen See Price Hike

WILL steel prices go up as a result of wage increases in July? Some top executives at the American Iron & Steel Institute meeting think they will.

Charles M. White, chairman, Republic Steel Corp., thinks there should be an increase. The industry can't absorb an increase of such magnitude unless companies "all are going to go in the red and stop paying dividends." He feels the price increase should be $11 a ton "because that's what the cost increase will be."

Arthur B. Homer, president, Bethlehem Steel Corp., says he is not speculating on steel price changes but refers to a previous statement that "we'd have to raise prices if wages increase."

R. L. Gray, president, Armco Steel Corp., thinks a price increase is "inevitable." Armco will have to raise prices regardless of what others do, he adds.

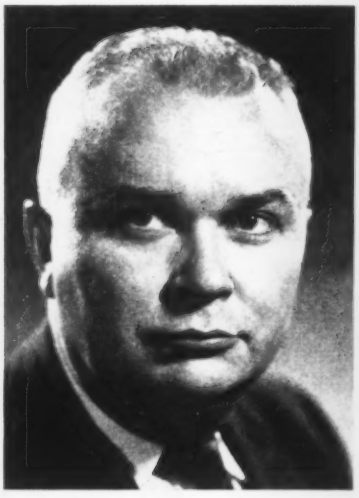
Avery C. Adams, president, Jones & Laughlin Steel Corp., feels an increase is justified. He will not estimate its size or probability, but says "any increase in prices would be helpful to sustain earnings."

Joseph L. Block, president, Inland Steel Co., asserts: "I have no idea that they will be increased but they should be so far as costs are concerned."

AISI Award Winners

J. M. STAPLETON
U. S. Steel Corp.

JOHN R. HUNT
Tennessee Coal & Iron Div., U. S. Steel Corp.



J. R. SIBAKIN
Steel Co. of Canada Ltd.

Mr. Stapleton, assistant to vice president-iron production, U. S. Steel Corp., Pittsburgh, won the AISI medal for a paper of special merit and importance read before an institute meeting. Mr. Hunt, chairman of operating committees, Tennessee Coal & Iron Div., U. S. Steel, Fairfield, Ala., and Mr. Sibakin, metallurgist, Steel Co. of Canada Ltd., Hamilton, Ont., were winners of regional technical meeting awards

nickel, and tin. We're becoming more dependent on them for zinc, manganese, and iron ore.

• A weakening in our fight against Communist encroachment. Over the last five years, Russia's rate of increase in industrial production was about five times that of the U. S. Her steel output rose 1.5 times faster than ours. During 1958's first quarter, she made 15 million tons of ingots, vs. our 19 million tons with less than half our capacity.

The other side of the coin: Mr. Gray warned that continued liberalization of trade policies could lead to "dangerous depletion of certain vital resources." He noted that, during a period of high production, the U. S. could easily concentrate on products not affected by low priced imports. "But with operations at a low level, it's impossible for us not to be concerned when foreign steel prices drop from $25 a ton above our prices to $25 below them as they have today," he pointed out.

What Hurts Most—Our greatest curse, contends Mr. Gray, is featherbedding in government, management, and labor. "We must eliminate it if we're going to keep up with progressive competition from abroad," he declared. "That means labor must take a more realistic attitude in its wage demands and do everything it can to increase productivity; management must cut administrative costs and step up output per manhour through technological improvements; government must increase its efficiency," Mr. Gray concluded.

Follow Canada on Depreciation?

On Jan. 1, 1949, Canada replaced straight line depreciation regulations with a declining balance system and, in 1951, provided accelerated amortization for iron and steel expansion. Result: The Canadian iron and steel industry has doubled its ingot capacity and trebled its investment in ten years.

So said Algoma's president, D. S. Holbrook. He expressed that growth in terms of Canada's 1957 production.

Among his examples:

• 80 per cent of the coke was made in ovens built in the last ten years.

• 40 per cent of the hot metal came from blast furnaces built in the last seven years.

• 50 per cent of the ingots came from furnaces built in the last seven years.

Out in Front—Mr. Holbrook said Canadian companies enjoy a distinct advantage over U. S. firms in depreciation allowances for tax purposes. Canadians can recover more than two-thirds of the cost of heavy machinery in the first five years—and a full year's allowance is granted on acquisitions made any time during the year.

Changes in U. S. depreciation laws would counteract the inflationary spiral of wages and costs because they would have the effect of reducing costs through increased efficiency, Roger M. Blough, chairman, U. S. Steel Corp., said. Even an improvement in our international stature would result from such a move, he stated, adding that "there are so many factors in its favor and none I know of against it."

He expressed belief that sentiment in industry and lately in Washington was for such action from the standpoint of improving the nation's

industrial capacity and efficiency and of creating jobs.

"Our job is to whip the recession and get back on our economic feet," Mr. Fairless told the steelmen. "We may do it with short range actions, but they better have long range goals. The main task of government is to help private enterprise do the job that only it can do: Create capital, private jobs, goods, and services," he asserted.

Timely Topics

AISI technical speakers tackle problems in production, research, and uses of steel

SHOWN at right are AISI's technical session speakers. They concentrated on operating and metallurgical problems.

The institute divided technical meetings into three programs. In the operating session, J. H. Stoll, chief metallurgist, Bethlehem, Pa., plant of Bethlehem Steel Co., discussed: "Vacuum Pouring of Ingots for Heavy Forgings." J. H. Strassburger, assistant vice president, Weirton Steel Co., Weirton, W. Va., presented a paper entitled: "Evaluation of the Blaw-Knox Ruthner Process Pilot Plant."

N. P. Veeder, president, Granite City Steel Co., Granite City, Ill., was chairman of the session.

Research—In this session, A. O. Bergholm, mechanical engineer, Franklin Institute, spoke on "The Buckling Strength of 301 Stainless Steel Plates and Columns." R. M. Fisher, research associate, U. S. Steel Corp., discussed "Electron Optics in Metallurgical Research."

A. M. Tredwell Jr., president, Sharon Steel Corp., Sharon, Pa., was chairman.

Applications — In this section, A. J. Lena and E. E. Reynolds of the research laboratories, Allegheny Ludlum Steel Corp., Pittsburgh, analyzed high strength steels for aircraft applications. W. O. Everling, manager of research, American Steel & Wire Div., U. S. Steel, Cleveland, presented a paper: "Steel in Prestressed Concrete."

V. H. Leichliter, president, AS&W, was chairman.

AISI Technical Session Speakers

J. H. STOLL
Bethlehem Steel Co.

J. H. STRASSBURGER
Weirton Steel Co.

R. M. FISHER
U. S. Steel Corp.

W. O. EVERLING
American Steel & Wire Div., U. S. Steel Corp.

E. E. REYNOLDS
Allegheny Ludlum Steel Corp.

A. J. LENA
Allegheny Ludlum Steel Corp.

STEEL Goes to Europe

France Fears Inflation

Although gross national product is expected to climb 20 per cent this year, only one-fourth of the increase will be real. The rest will represent higher prices

DESPITE the current threat to the Fourth Republic, France is prosperous. But it's an uneasy prosperity threatened by further inflation.

In mid-August, 1957, the value of the franc was cut 20 per cent. It was worth 350 to the dollar before devaluation, 420 after. Those are the official figures, but francs are easily available in the black market at 450 to the dollar.

Resume of the Facts—Figures (all at 350 francs to the dollar for comparison) on France's gross national product show what is happening: In 1956, the GNP rose to a new record of 18,325 billion francs ($52.4 billion); the 1957 figure jumped to 20,520 billion francs ($58.6 billion); the 1958 GNP is expected to climb 20 per cent to 23,710 billion ($67.7 billion).

Three-fourths of the increase this year will represent higher prices, one-fourth larger physical volume. Wholesale prices in March were 166.7 per cent of the 1949 average (vs 143.6 a year ago) and are still rising. Wages also are increasing steadily and special bonuses are being offered machinists and other skilled workers.

To prevent a further drop in an unfavorable foreign trade balance, France needs to import more raw materials and further restrict purchases of finished goods abroad. The emphasis is on home production. France spent over $2 billion in the last ten years mechanizing mines and still must import 20 million of the 80 million tons of coal needed yearly. Half the imports are from the U. S.

Steel Output Increased—Over $2 billion has been invested in France in the last decade for steel modernization and expansion. Current difficulties apparently have had no detrimental effect on the five-year plan (1957-61) to spend over $1 billion in adding 4,408,000 tons to present capacity of 15,979,000 tons. In the first quarter, French mills produced 4.2 million tons of steel ingots. This was 8 per cent higher than first quarter figures in 1957 and a record three-month period.

Outlook for Steel—Production in 1958 may match the 14.8 million tons turned out last year. Exports are down but demand remains strong locally and French prices are lowest of the six European Coal and Steel Community countries. French equipment builders are busy and booked well ahead. E. W. Bliss Co. of Paris has enough stamping press orders to keep its 350 workers busy for a year, President Roger Rivolta reports. One order is from Renault for 18 presses.

The French auto industry is enjoying a phenomenal year. Production of cars and trucks hit 287,927 units in the first quarter (25.5 per cent ahead of last year). Nearly a third of the cars are going abroad, including over 3000 a month to the U. S.

France has a large untapped market for home appliances, office equipment, and a wide range of industrial products. But, as many U. S. manufacturers have already learned, a complex system of import duties, licensing, and quotas makes it virtually impossible to sell directly into the French market. It can be done only by making arrangements with French manufacturers.

This is another in a series of on-the-spot reports on European metalworking by STEEL's editor-in-chief, Irwin H. Such. He is now in Russia to gather material for special articles which will appear in STEEL.

Casting Costs Eyed

Visitors at Cleveland foundry show see array of mechanized equipment, new products

FOUNDRYMEN on the lookout for cost-cutting methods exhibited a keen interest in the mechanized equipment on display last week at the American Foundrymen's Society show in Cleveland.

Designed to keep the castings industry moving forward and in a strong position to meet competition, this year's show had something for everyone—from the large production foundry to the small jobber.

Automated Foundry Shown—American Automation Corp., Ann Arbor, Mich., exhibited, in literature and photographs, a completely automated foundry being operated in Switzerland. Operated by nine men, the system can process up to 300 molds an hour. Maximum production for 20-lb castings is 3 tons per manhour.

An operating display of foundry equipment, probably the largest display at the show, was exhibited by F. E. North America Ltd., Toronto, Ont. Equipment included an automatic molding machine, core blower, sandrammer, automatic core handling, mold conveyor, and complete sand preparation plant.

Operating Exhibits Plentiful—On the lower levels of Cleveland's Public Auditorium, foundrymen were confronted on all sides by operating exhibits of molding machines, both shell and sand; and coremaking machines, shell, oil sand, and CO_2 processes. International Foundry Supply Co., Reading, Pa., was melting 50-lb heats of Alcoa 356 aluminum in a gas-fired Revecon furnace in 12 minutes.

Whiting Corp., Harvey, Ill., exhibited its 56-in., water-cooled cupola with tuyeres made of fabricated copper.

Several exhibitors showed displays of induction melting and vacuum melting equipment for the foundry.

New Abrasive Introduced—Pangborn Corp., Hagerstown, Md., introduced its new vacuum cast steel shot at the show. Made of electric furnace alloy steel, the material has high density and is practically free of voids and defects.

What To Tell 'Primes'

Your presentation of this information to prime contractors may affect your success in getting subcontracts, say Navy officials:

GIVE:

Corporate name and plant location(s).

Names and addresses of affiliated firms.

Name and title of company official who'll answer primes' questions.

DESCRIBE:

Present products in detail. (Include catalogs and price lists.)

Products made for defense during World War II (with pictures, if available), names of agencies or prime contractors, delivery record. Products you feel capable of making. (Be specific.)

LIST:

All machinery and equipment—show types, sizes, age, and condition. Feature any special-purpose tools. Mention tolerances you can adhere to. (Consider using photos.)

Contemplated sources of any new tools needed.

Firms that can supplement your facilities as subcontractors (like foundries, plating plants, machining shops).

Total plant capacity and percentage available for subcontract work.

Plant area, buildings, type of construction, layout. (Drawings are helpful.)

Three representative customers.

SHOW:

Access to railroads, truck routes, airlines, waterways. (Describe plant loading facilities.)

Inspection and testing facilities.

Number and types of personnel, including management, engineering, technical, skilled, and unskilled. Stress any unusual skills. Mention any training facilities. (Biographical sketches of key engineers, showing training and experience, can be a strong sales point.)

SUPPLY:

Full financial information—credit, financial report.

INDICATE:

Whether plant security measures have been approved (and by what agency).

List fences and other physical protective devices and systems.

How To Sell for Defense

SMALL FIRMS have to jump a hurdle to get defense business. "But it's largely mental, not physical," contends Robert Palmer, president, Palmer Mfg. Co., Cleveland.

The manager of a small production machine shop says: "In more than ten years of doing business with both government and industry, I've found the least red tape on government jobs. Because of military contracts, we're operating at capacity 50 hours weekly and present employment (50 workers) is double that of a year ago. Of total sales—I expect a record $1.5 million this year—95 per cent are to Uncle Sam."

Plenty of Opportunity — Mr. Palmer's views were echoed by government procurement officials and prime contractors at a Cleveland "small business opportunity conference"—one of 11 such meetings planned for major U. S. cities. Sponsors: Cleveland Chamber of Commerce, Small Business Administration, Commerce Department, Army, Navy, Air Force, and Smaller Business of America Inc.

Twenty-four prime contractors and 11 government procuring groups exhibited components they'll purchase from small firms. The 750 businessmen who viewed the parts had an opportunity to bid on them. Some figure they did quite well. Example: A small Ohio stamping firm is negotiating for long term contracts with both the Atomic Energy Commission and Army Chemical Corps on items they displayed, reports James G. Garwick, SBA regional director.

Selling to Primes—While there are many prime contract opportunities for small firms in research and development and specialized production jobs, the big chance is in subcontracting. Procurement people indicate these are the steps to follow in seeking orders:

1. Analyze your facilities to see what you're best qualified to make. (See STEEL, May 19, pp. 96-97.)
2. Check on the possibility of joining forces with other small firms.
3. Prepare a statement or brochure about your company (see checklist).
4. Write to SBA, the Chamber of Commerce, and other like groups to get your name placed on mailing lists for information on subcontract and prime contract opportunities in your area.
5. Seek out primes who appear to have a need for your capabilities and cultivate good relations with them—it's a selling job. Personal calls usually get best results. Show your qualifications for any specific job you have in mind. Or use this approach: "Here's how I could make this component for you if you want to bid on that job for the Air Force."
6. Find how the prime contractor expects you to function on tooling, submitting production samples, deliveries, and the manner in which engineering changes are processed.

Mills, Ways & Means chairman, favors inflation-type bill

Byrd, Finance Committee head, opposes any kind of tax cut

Depreciation: Help on Way

CHANCES are good that some form of stopgap action on depreciation will be taken by this Congress.

But it's pretty certain that the legislation will bear little resemblance to the bills that have been made public to date. Permanent relief seems to be out of the question until the next Congress convenes, and fast amortization probably won't win approval now. (Some temporary or partial depreciation relief, such as that proposed by STEEL, Apr. 28, seems to be in the works for this session. Wider, permanent reform, also recommended by STEEL, probably will have to await Congressional action next year.)

Many Democrats and Republicans in the House reportedly favor a measure that takes something of a stab at inflation. Although it has not taken final form, the bill will probably follow this pattern: Say you buy a tool for $25,000 and must replace it in ten years with one that costs $50,000. You will be allowed some sort of credit on your taxes. The details are being worked out by several leading Democrats in the House. Chances are the bill will include a retroactive feature.

Look for small business to get help from a bill sponsored by Rep. Wilbur Mills (D., Ark.), chairman of the House Ways & Means Committee, and Rep. Daniel Reed (R., N. Y.), ranking minority member of the committee. It provides: 1. An ordinary (rather than capital) deduction for income tax purposes on losses from investment in small business stocks up to $50,000 in one year. 2. Accelerated depreciation on used property up to $50,000. 3. Partnership-type tax treatment by small business shareholders, if they want it. 4. Payment of estate taxes over ten years.

Other Relief—The House is also expected to vote for straight extension of corporate and excise taxes. Although tax cuts make political sense, Capitol Hill is still wary of measures that dig too deeply into revenues. That explains why representatives won't recommend a reduction in excise taxes, even though they believe that the Senate will make some adjustments.

Schedule—The Ways & Means Committee will probably start a long series of closed sessions on tax legislation during the week of June 2. It looks as if earlier action will be impossible because of the expected floor fight on the Reciprocal Trade Bill.

Sources close to the House say the committee will follow this schedule:

1. Vote for straight extension of corporate and excise taxes.
2. Vote for the small business bill.
3. Vote for some form of depreciation relief.

Some believe that the depreciation bill will be a rider on the small business bill. Others think it will be a separate measure.

Sentiment—Don't count on a lot of help. Insiders believe that any depreciation bill or bills reported out of committee will be motivated

more by political expediency than by the desire to give the economy a boost over the long pull. Many congressmen are still pretty apathetic toward depreciation reform. Right now they're concerned with antirecession measures with vote-getting appeal.

Bills that are aimed at the useful lives concept, such as those introduced by Sen. Homer E. Capehart (R., Ind.) and Rep. Howard H. Baker (R., Tenn.), aren't given much chance because most congressmen feel that Bulletin F matters should be handled by the executive branch. In fact, the Internal Revenue Service is now sitting on a revision of those regulations. (It's understood that the changes are not far reaching and chiefly include additions to the list of equipment invented since the last revision in 1942.)

Where House Stands—Since the Ways & Means Committee has yet to take action on tax legislation, members are generally reluctant to show their hands, but it is believed that Republican and Democrat members are pretty much of the same mind. One source reports that Chairman Mills has said: A bill that gives some allowance for inflation (like the plan mentioned earlier) or some similar formula will have to come out of committee this session.

Another approach, progressive cuts in corporate taxes over a five-year period, is found in a bill sponsored by two other members of the Ways & Means Committee, A. Sydney Herlong Jr. (D., Fla.) and Antoni Sadlak (R., Conn.).

Representative Herlong says that two other Democrats on the committee would vote for the bill but that not all Republicans would. He hints that it doesn't have a chance of getting out of committee and believes that "gimmicks and gadgets" will prevail. He will probably go along with the thinking of Representative Mills.

Another committee member, Rep. Richard M. Simpson (R., Pa.), was expected to introduce a companion measure to Senator Capehart's. One source says: "I think he still intends to," but another thinks he has changed his mind since the Baker Bill was put into the hopper. It's understood that the Simpson Bill is an antirecession measure, while Representative Baker's offers permanent help.

Where Senate Stands—In general, tax cut sentiment is stronger in the Senate than it is in the House at this time. But most of the senior lawmakers won't commit themselves until they see which way the wind blows in the House.

One thing is certain: Sen. Harry Byrd (D., Va.) will wait as long as possible before committing his Finance Committee to a decision in the hope that he can push through a simple extension of corporate taxes by June 30. He is opposed to tax cuts, rapid amortization, and anything else that will increase our deficit.

Senator Capehart will tout his bill as being for millions of folks, especially the farmer and the little businessman. (It provides: "The depreciation period for any capital investment now based on up to and including a 15-year estimated useful life would be reduced by one-half. That portion of the estimated life on any capital asset exceeding 15 years would be reduced by two-thirds.")

The consensus of leaders on the Ways & Means Committee is that the Capehart proposal has bugs in it and that it would not stimulate capital spending. Sen. Ralph Flanders (R., Vt.) is "in sympathy" with the Capehart measure but believes that it's too late for this session of Congress to do anything of that nature. Sen. George Malone (R., Nev.) thinks that "inflation has destroyed our amortization principles." He will probably go along with action taken by the House. Sen. Joseph Frear Jr. (R., Del.) thinks the best bet will be excise tax relief, but he will probably support Senator Byrd's views.

Sen. Albert Gore (D., Tenn.) and Sen. Robert Kerr (D., Okla.) seem to be in the minority. They think the 1954 revision of the revenue laws went far enough.

Outlook — What will be the chances of long term depreciation reform in the next Congress? Representative Mills is "hopeful." Representative Simpson says such action is "an absolute necessity." Rep. Noah M. Mason (R., Ill.) predicts: The outlook "is bleak if the Democrats win stronger control of the House and Senate, as I think they're going to do."

Tax Decision Soon

Delegates to AMA conference set up antirecession program. Ike sounds optimistic note

A DECISION on whether to cut taxes will be made soon, President Eisenhower promised last week at an economic mobilization conference in New York. The conference was called by the American Management Association and was attended by top U. S. industrialists.

Voices from Industry—Ralph J. Cordiner, chairman, General Electric Co., said he felt the worst of the recession was over and an upturn might be trying to get underway.

Mr. Cordiner cited the fact that incoming orders for GE were significantly higher in March and April than the disappointing level of January and February.

Frederick R. Kappel, president, American Telephone & Telegraph Co., said: "Elimination of (federal excise) taxes would encourage expansion in the communications and transportation industries."

Continued Mr. Kappel: "These taxes eat into profits, and profits are the vehicle that allow us to do things ahead of demand (such as research and expansion)."

The Summing Up — Elmer L. Lindseth, president, Cleveland Electric Illuminating Co., offered a 12-point program to improve business. It was derived from suggestions made by speakers at the conference. Included are:

1. Look closely at the cost of every product and service to eliminate waste.

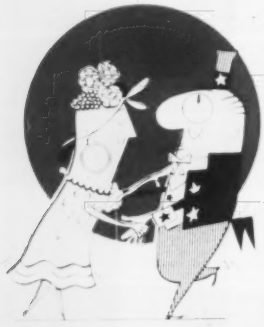
2. Sell "smarter and harder" and back up salesmen with better promotion and advertising; be more creative in developing new markets.

3. Reduce prices if you can build volume that way; if not, try to hold prices firm.

4. Maintain or increase research and engineering, particularly new product development.

5. If possible, maintain capital expenditures to replace obsolete plants and equipment.

6. Use every skill of good management; don't sacrifice long range goals for short range expediency.



Better Relations Needed in South America

LOOK FOR a three-point economic program for South America to come out of Congressional distress over Vice President Nixon's Venezuelan reception. Sen. George Smathers (D., Fla.), a member of the Interstate & Foreign Commerce Committee, who is rapidly assuming qualities of Capitol Hill leadership, suggests: 1. A "stable" trade policy. 2. Assurance South America will get its share of loan funds. 3. Special economic assistance in health, education, and sanitation.

U. S. trade, says Senator Smathers, is the "economic lifeblood" of South America. Our recession has generated a call for higher tariffs on Latin imports. The senator believes this would protect U. S. domestic interests but lose the southern continent to Communism, as well as cut off its dollar supply for purchases of our automobiles, steel, and chemicals. Of course, if Latins can't buy from us, they'll be prone to barter with Russia.

For U. S. miners, the senator offers: "Stockpiling of lead, zinc, and copper from the mines of Mexico, Chile, and Peru." This would allow domestic mines to supply our needs without excessive competition from the south.

On the other side of the aisle, Sen. Alexander Wiley (R., Wis.), ranking Republican member of the Foreign Relations Committee, agrees with Senator Smathers to a point. He thinks "the attitude of the U. S. toward Latin America can certainly stand revision." He cites need for "a mutually beneficial trade policy."

With mutual aid funds not yet appropriated by Congress, further cuts in the administration's program (the House cut it $339 million in its authorizing legislation) remain possible because of the recession and indications funds are being wasted. Stoning of Mr. Nixon, however, has boosted the popularity of aid funds among many congressmen.

To Convert Raw Stockpile Materials

Sen. James Murray (D., Mont.), Interior Committee chief, wants to force the Office of Defense Mobilization to convert stockpiled ores "into a maximum state of immediate usefulness." Involved are chromite and manganese ores and concentrates to be used by ferrochrome and ferromanganese plants to supply the steel industry.

At least 19 other senators are backing Senator Murray in a formal resolution before the Government Operations Committee. This move and Senator Smathers' call for a new stockpile program are first indications Congress wants to keep the U. S. metals and minerals buying program going. ODM's present plan is to kill it for everything except special high temperature alloying materials.

Businessmen in Government: How Good?

A Hoover Commission finding that "the greatest weakness in government is in expert managerial direction" is verified by a report from the Harvard Business School Club of Washington. A special club report says: "The government does not take continuing action to recruit and retain businessmen or any other type of executive manpower."

The report recommends a central White House recruiting office for government service and an attempt to get businessmen to stay longer in Washington (average length of service is under two years). Although some civil servants view businessmen in government as opportunists, they generally respect the "different attitude" businessmen bring to Washington, points out the report.

Rough Going for the Trade Act

Despite efforts of some administration backers to delay a showdown on the Reciprocal Trade Act, the House Ways & Means Committee voted to extend it for five years (as the President wished), but added some provisions to favor protectionists.

At the last moment, some liberal traders wanted the act extended for only one year and without protectionist amendments. That would have brought up the act for consideration again next year (presumably, the economy then will be steadier and congressmen won't be concerned about elections).

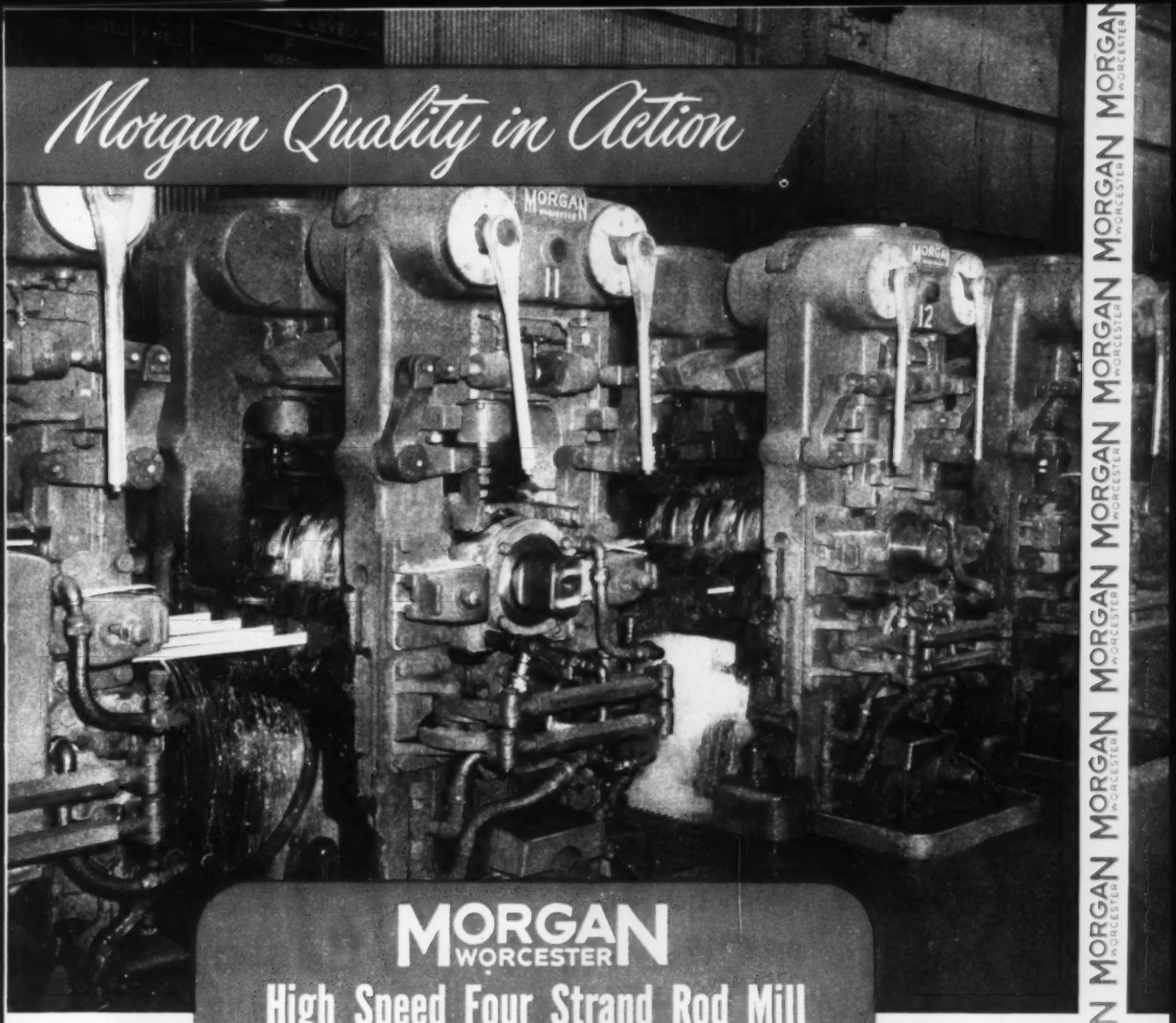
The committee's bill needs a two-thirds vote by both houses to overrule Presidential decisions against Tariff Commission recommendations for protection of domestic industries. (In the last few years, the commission often has recommended higher tariffs but the President usually has refused to go along.)

Committee leaders reportedly give the bill an even chance. Meanwhile, protectionists are backing a bill (to extend the act for two years) which has requirements for much higher tariffs and quotas. It comes to the floor next week.

Capitol Notes

ODM will soon set up regional units of the National Defense Executive Reserve . . . Defense dollars paid to small business subcontractors dipped from 21.5 per cent of military contract receipts in the last half of 1956 to 20.5 per cent in the last half of 1957.

Morgan Quality in Action



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The modern way to cut a die is typified by die sinking machine, one of many at Interstate Drop Forge Company. All die sinking machines are lubricated by Cities Service lubricants.

With production running at roughly 1000 tons per month, Interstate Drop Forge Company of Milwaukee is one of the largest forging concerns in the Wisconsin area and growing all the time.

An integral part of this growth story, Cities Service is proud to have filled Interstate's lubrication needs for the past 20 years.

Drop hammers . . . helve hammers . . . upsetters . . . forging rolls . . . shapers . . . automatic metal saws. These are but a few of the diversified machines lubricated by specially tailored Cities Service oils and greases.

Actually, in a plant of this type with so many differing pieces of machinery, it would be possible to have as many as 25 different lubricants. But, Interstate, with the aid of their Cities Service Lubrication Engineer has been able to standardize on twelve Cities Service lubricants.

Streamlining . . . standardizing . . . improving. These are some of the services a Cities Service Lubrication Engineer can render for your operation, too. Ask him to make a free lubrication survey of your plant. Call the nearest Cities Service office or write: Cities Service Oil Company, Sixty Wall Tower, New York 5, N. Y.

CITIES SERVICE

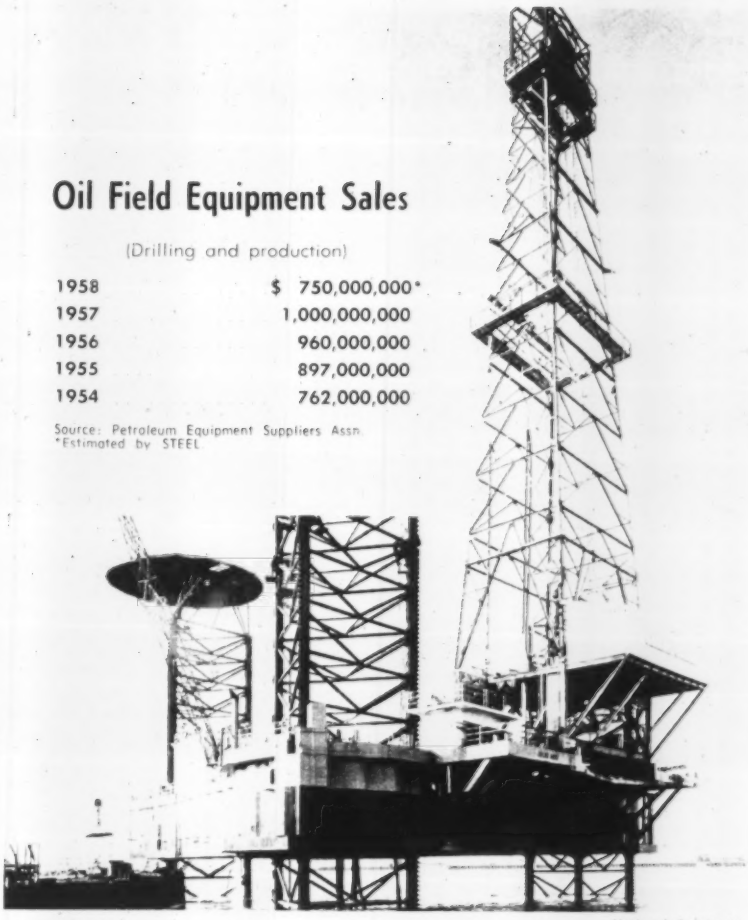
QUALITY PETROLEUM PRODUCTS

Oil Field Equipment Sales

(Drilling and production)

1958	$ 750,000,000*
1957	1,000,000,000
1956	960,000,000
1955	897,000,000
1954	762,000,000

Source: Petroleum Equipment Suppliers Assn.
*Estimated by STEEL



National Supply Co.

Inventories Force Slowdown

A TOUR of U. S. and Canadian oil fields this week would show about 1910 rotary rigs in operation—24 per cent below the year-ago figure. Men who make and sell oil field equipment tell a sad story: Sales are down 25 to 30 per cent from last year's record high, and no improvement is expected before the fourth quarter.

There's nothing wrong with the equipment business a higher drilling rate wouldn't cure. The trouble: Too much crude oil on hand.

Corrective Measures — During 1957, the problem was subjected to a double-barreled attack: 1. A cabinet committee recommended that oil companies voluntarily limit imports to 12 per cent of 1954 production. 2. The Texas Railroad Commission (charged with conserving natural resources) reduced the number of oil producing days in that state from 18 a month to 12. When stocks continued to climb this year, the commission took further action. In April, it cut the allowable producing days to eight (the present level).

Why They Aren't Buying—If a contractor can operate only seven of his ten rigs, he dismantles the inactive equipment and stores it. When something breaks on an operating rig, he doesn't buy a replacement. He pirates from an idle rig. Result: Few orders for rigs or their major components. (Best sellers today are expendable items.)

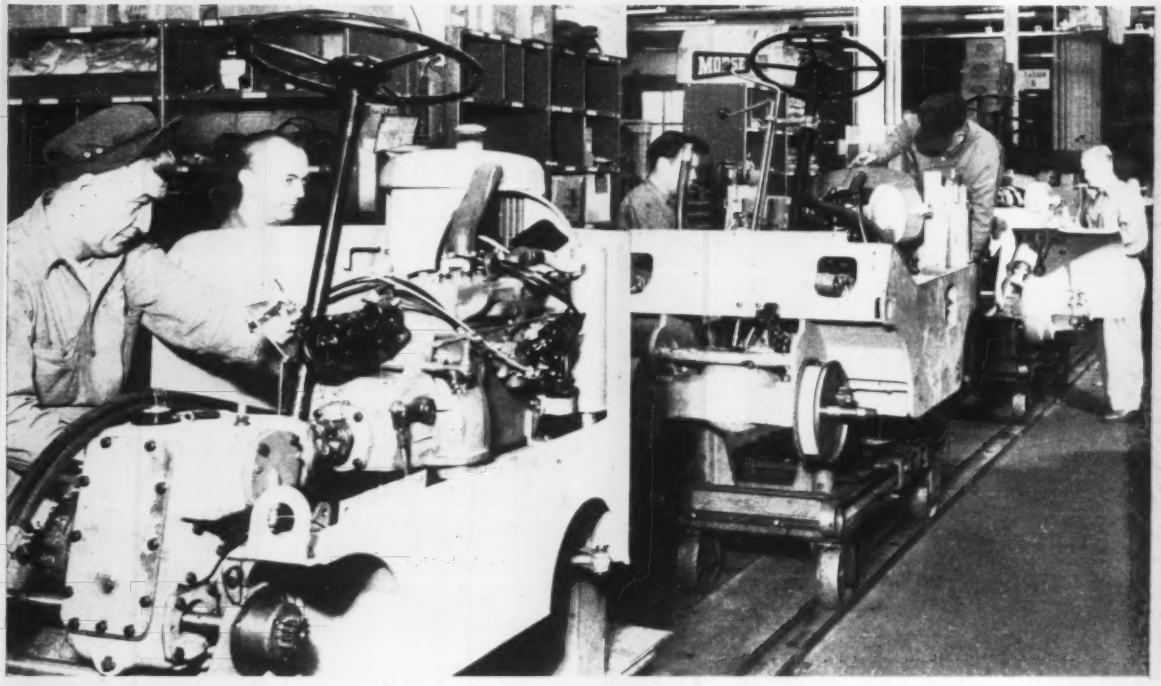
Oil Country Goods—The market for drill pipe, tubing, and casing is even worse and may not improve perceptibly for a year. Tremendous inventories were accumulated last year when tubular goods were scarce. Now the oil companies are trying to unload. During the first quarter, mill shipments of oil country goods were only a third as great as those in the like period last year.

Imported pipe accounts for less than 5 per cent of oil country sales. Says a Pittsburgh mill executive: "Major oil companies want pipe approved by the American Petroleum Institute. They wouldn't buy imported pipe unless they had money tied up in foreign countries."

Memphis Decision—Tubemakers have another problem. Last November, a federal court ruled the FPC can't approve higher rates for natural gas transmission companies unless they are acceptable to utilities buying the fuel. Result: Expansion programs are being delayed. Before the ruling, it was estimated $590 million would be spent on pipelines this year (vs. $750 million in 1957).

Export sales won't match last year's figures, but may drop no more than 10 per cent. Rigs are being shipped into Libya and Tunisia for exploratory drilling. Prospecting is also being done in Turkey and Egypt. Saudi Arabia is a steady customer for supplies but an infrequent buyer of capital equipment. National Supply Co., Pittsburgh, a division of Armco Steel Corp., conducts a thriving business in Venezuela through a subsidiary company and several stores. It expects more competition soon, since Venezuelans plan their own pipe mill.

Looking Ahead—"There will be a gradual upswing in the next few months and an appreciable improvement in the fourth quarter," predicts William L. Wolfe, sales vice president of Jones & Laughlin Supply Co., Houston. Since February, crude oil inventories have dropped from 290 million to 276 million barrels. General feeling: Current inventory level should be 259 million barrels. If the Texas Railroad Commission concurs, production will probably be limited to nine or ten days a month until autumn. Oil economists are counting heavily on population growth. They're expecting another boom by 1961.



Lift trucks are prepared for instrument and cowl installation at Towmotor Corp.

Equipment Prices Steady

BUYERS of metalworking equipment can look for relative price stability through 1958. A few categories may see modest bumps, but business prospects aren't good enough for most manufacturers to justify a hike.

Any price fluctuations will probably be on the down side. But most equipment makers think price cuts have about ended. Reasons:

1. They believe the worst of the recession is over.

2. Labor and material costs are getting higher, while profits are shrinking. Many say they can't lower prices any more and stay in business—some firms are taking work near the break-even point. One qualification: If business worsens, competition, which was intense even before the recession, may force prices down more.

Here's the outlook for the rest of this year in eight categories:

Machine Tools—Prices have fluctuated little in the last six months. Some minor shading is reported, but it's generally confined to extras like tooling. In most cases, the published price is the selling price.

Business is poor. The National Machine Tool Builders Association, Cleveland, says orders (metal cutting and forming machine tools) in the first quarter came to only $90.5 million, vs. $220.2 million in the like 1957 period. First quarter shipments registered $159.5 million, vs. $318.8 million last year.

The outlook is for prices to stay at present levels until yearend. Builders say business is bad enough without depressing it more with increases.

Manufacturers see little chance of prices going down. Unit production costs are going up because fewer machines are being turned out.

Says one manufacturer: "Only a whopping boom in general business could cause an appreciable price rise. I can see no change until some time in the latter part of 1959 or early 1960."

Lift Trucks — Companies report sales are 8 to 25 per cent below last year's, making competition stiff.

Manufacturers' prices have held fairly steady over the last six months. For the most part, list prices haven't varied. Only one firm reported a price hike (10 per cent) to STEEL. Informal slashing of quotations is pretty rare.

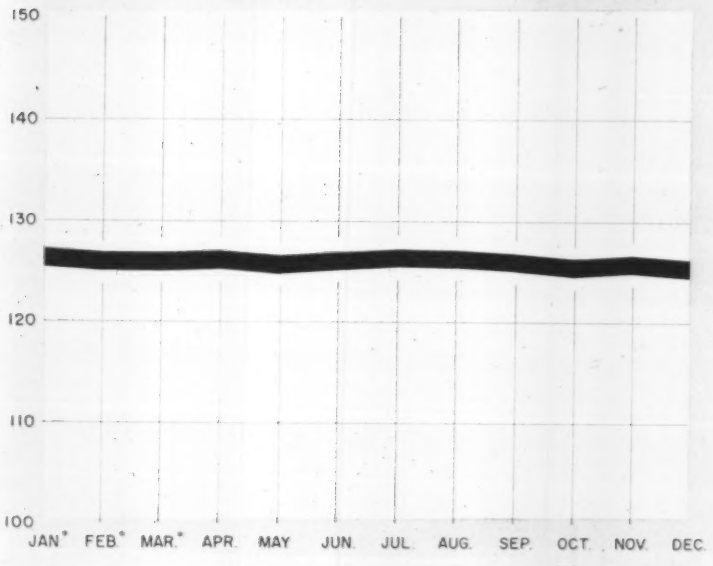
Price trimming among dealers was common in last year's fourth quarter and this year's first quarter. It has about stopped now.

Most makers look for stable prices the remainder of this year. Low profit margins practically rule out any reductions. And any move to raise prices would meet heavy customer resistance. "But an increase in steel would certainly cause us to re-examine our price structure," says an Ohio company.

One manufacturer forecasts a 20-year pattern in lift truck prices: A 25 per cent gain in the next ten years and 25 per cent on top of that in the 1968-78 period.

Belt Conveyors—Business is down an average of 20 to 25 per cent. Like some other areas, the situation is spotty—a few firms are doing as well as they did last year; a few are doing better.

Wholesale Price Index: On a Plateau This Year



1947-49=100.
Includes all commodities other than farm products and food.
*Bureau of Labor Statistics. All other figures estimated by STEEL.

Prices show some instability. Says one company: "There is definite price weakness in this field. Even the most ethical blue chip producers are cutting quotations. It's probable that prices are off 5 per cent or more from those of a year ago."

Most adjustments are hidden behind such euphemisms as "freight concessions."

Prices will follow general business conditions until yearend. One firm believes sales by August or September will be good enough to support a markup of 10 to 15 per cent. But the majority thinks it will be almost impossible to boost quotations. Says a midwest manufacturer: "Customers now insist on a firm price in contracts. So if we take an order for delivery later this year, we won't be able to raise that price even if we get hit with higher steel and labor costs."

Hydraulic Presses—Some producers haven't changed prices recently, but others say competition has stimulated fairly widespread price cutting. One producer estimates over-all prices are 10 per cent below what they were last year.

"Some manufacturers want to fill their shops so badly they'll not only operate at smaller per unit profit but sometimes quote under cost," says a midwest company.

Sales will probably hold near present levels (down 25 to 30 per cent) until yearend. But you may see some sporadic cuts, perhaps even a sprinkling of increases. Summation: Ascending costs counterbalanced by mediocre demand and sure customer resistance to higher quotations seem to indicate relative price stability in the months ahead.

Punch Presses—Most companies say their business is about 20 per cent under what it was last year. Result: Erratic price cutting. Says one firm: "Some companies are accepting business at a loss to keep their plants operating."

Most manufacturers have labor increases coming due this year as a result of contracts signed in 1956. Increases in the cost of raw materials would depress profits even more.

But costs alone won't force prices up because it's a buyer's market. Revisions will be feasible only if demand improves substantially. That failing, look for prices to hold at present levels the rest of '58, with some sporadic shading as companies maneuver to meet competition. A weakening in sales could make price cutting general.

Rolling Mills—Bidding is competitive, but producers doubt that much price shading is going on. "Orders usually go to the supplier that seems to have the best grasp of the engineering problem," says one company.

Industry sales are down 25 to 40 per cent from last year's but makers say they will have to boost quotations if steel and labor prices go up. Look for prices to be hiked 3 to 5 per cent in late summer.

Welding Equipment—This industry doesn't show a clearcut pattern. While prices have been generally steady this year, one firm says it changed some dealer discounts and discontinued some quantity shipment discounts. Another firm says it recently upped prices 5 per cent.

Competition generally determines prices in this industry. One midwest firm says reductions of as much as 50 per cent are being made to get business from certain depressed industries (such as automotive).

So far this year, sales are down about 25 per cent.

Outlook: Although a few makers think a price upturn could come in the fourth quarter (because of increased sales), the consensus is that quotations will hold at about present levels throughout the year.

Industrial Furnaces—Some firms have held the price line; others have pared quotations 5 to 10 per cent, reflecting increased competition and the drop in certain component prices—mainly electrical.

Lower prices aren't too likely. The exception: The prices of some firms are still above the competitive level; they may get in line.

Some companies say they will have to boost prices later in the year if they get hit with steel and labor increases this summer. But unless business picks up substantially (it's down as much as 40 per cent for some makers), it's doubtful if a hike could be justified.

Outlook: Expect current prices to prevail through 1958, with a slight chance for a mild increase.

• *An extra copy of this article, the third in a five-part series on metalworking's pricing prospects, is available until the supply is exhausted. Write Editorial Service, STEEL, Penton Bldg., Cleveland 13, Ohio. On May 12, the editors dealt with steel prices; on May 19, with prices of components. In succeeding weeks, they will study the situation in construction and consumer durables.*

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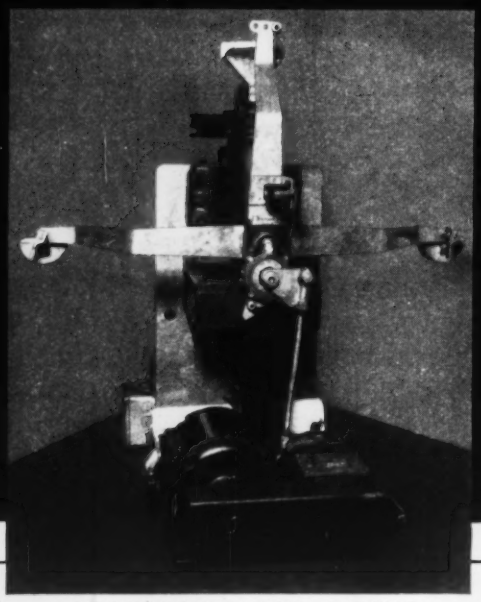

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MATERIAL TESTED – S660 CHILLED IRON SHOT

A – Cleveland Metal Abrasive B – Competitors C – Competitors

SCREEN ANALYSIS

U.S. No.	S.A.E. Spec.	A	B	C
8	0	0	0	0
10		35.5	54.0	36.0
12	85	60.3	36.2	48.0
14	12	4.2	7.7	14.0
Pan	3	0	1.1	2.0

CHEMICAL ANALYSIS

	A	B	C
T.C.	2.72	3.29	2.42
Si	1.13	1.36	1.20
Ph	.056	.380	.130
Mn	.40	.36	.47
S	.128	.176	.141

Rc HARDNESS

	A	B	C
Low	58	59	57
High	62	65	62
Average	60	63	59

BREAKDOWN TEST

Thru U.S. No. 10 on U.S. No. 12 – No. of Grams Tested 100 – 100 Passes at 7200 R.P.M.

	A	B	C
12	0	0	0
14	2	0	.1
16	4	0	.5
18	4.8	.1	3.5
20	15.6	.2	9.4
25	24.4	7.9	20.7
30	13.5	8.4	12.1
35	9.9	10.6	11.5
40	4.1	11.3	6.0
45	2.7	7.1	4.6
50	2.0	14.2	3.4
Pan	13.7	27.6	17.8
Loss	8.7	12.6	10.4

Remarks – C.M.A. material best by test. B. M.

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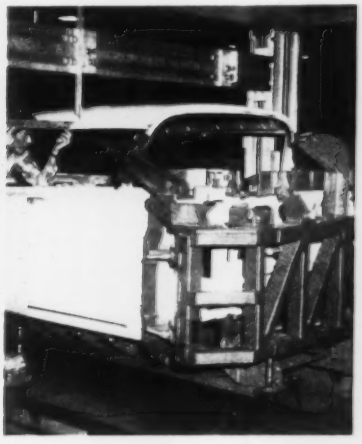
Keep Importing or Build Here?

General Motors Corp.



Small Cars: Now or Later?

If import sales continue to grow, GM and Ford will commit themselves to small cars soon, say Detroit sources. They may decide to check the 1959 market first

JUNE is supposed to be the month General Motors finalizes plans to introduce an American-built small car in the fall of 1959. Current thinking around Motordom's capital: GM and Ford will wait until the industry recovers from this recession year.

Autodom is beginning to realize the small car craze is just part of a marketing revolution sweeping the industry. Everyone has picked up pieces, but it takes time to fit the puzzle together.

What Has Happened?—Perhaps a clue to the small car's future can be found by briefly looking at sales of different types of cars in the last seven or eight years, why changes occurred, and what may happen in the years ahead.

1. Luxury car sales remained high and grew a bit. Since 1949, the elite (Lincoln, Cadillac, and Chrysler—later Imperial) have consistently taken their traditional 5 per cent of the market.

In addition, GM upgraded Buick's Roadmaster and Oldsmobile's 98, so they, too, are considered luxury priced cars. This year, Mercury introduced its Parklane series, and Buick added the Limited series to make an even bigger play for the top dollar.

2. While the luxury market has held firm, the medium-priced market has been shrinking. Top-priced Fords, Chevrolets, and Plymouths have sidled into the medium price field. Registration figures show medium-priced cars accounted for 44 per cent of the market in 1952. Last year, they took only 34 per cent, and so far this year market penetration is around 31 per cent.

3. As upgrading continues, there is accelerating demand for more economical transportation (up to now filled primarily by imported cars). Despite the recession, *Ward's Automotive Reports* indicates import sales will probably hit 300,000 units this year, up from 206,827 last year and 51,600 in 1955.

Why Did It Happen? — In the late '40s, car builders began responding to demands for bigger and better cars.

Those who could afford it moved into the luxury field and usually stayed. But average buyers couldn't keep pace, and as one executive puts it: "We just plain ran out ahead of what buyers could pay."

Result: When a customer could only afford a stripped Pontiac or Dodge, he took a Chevy or Plymouth and spent what he had left over for accessories like power steering and brakes. The horsepower race didn't help.

Buyers 'Discover' Small Car

During the 1954 slump, economy minded buyers rediscovered the European small car.

The movement faltered in 1955's lush market, but Volkswagen kept plugging, and by 1956 the rush was on. More and more European carmakers have hastened to tap what, to them, has become an important fringe market.

Driving a small car has become

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the "smart" and economical thing to do. The so-called reverse snobbery of the imports has made some observers like American Motors Corp.'s George Romney believe buyers no longer see a bigger car as a prestige symbol but prefer to show off with boats, swimming pools, and trips to Europe.

U. S. Builders Investigate

As imports climbed, Edward Cole, Chevrolet's general manager, and later, J. O. Wright, Ford division chief, indicated American producers would take a closer look at the situation when small car sales reached half a million units a year. (Ford earlier had said 5 per cent of the market, but the figure gave way as 1958 sales dwindled.)

Actually, the companies were keeping tabs on the market, and Ford and GM pushed ahead with small car designs. Earlier this year GM released orders for parts to its Holden subsidiary in Australia. The understanding around Detroit has been that GM would be ready to move if the demand called for build-ups here. If not, the tooling could still be used for the Holden car.

Some engine and transmission tooling, reportedly for a second GM small car, has also been placed in the U. S. But reliable sources say it only amounts to about $5 million, most of which is for rebuilding available equipment. (Much of the tooling could be used for conventional cars.)

Starts Talk—But the tooling releases and talk led to the conclusion that GM aimed to bring out the small car in the fall of 1959 for the 1960 model year. Apparently, that was the plan. But unless the present evidence is a smoke screen, it looks like car builders will wait through 1959 to see what happens to small car sales after what is hoped will be a recovery year.

If import sales continue to grow (several makers have indicated they may settle around 300,000 units a year), and if cars like Chevrolet (reportedly bigger for '59) continue to make inroads into the medium price market, Ford and GM will probably commit themselves to an American-built small car.

Upgrade To Make Room—If and when that happens, there's likely to be some reshuffling of present car lines. Cars in the top medium priced series will be upgraded to bring them closer to the luxury market.

Lower medium priced cars (like Mercury's Monterey and Pontiac's Star Chief) may be dropped and replaced by top priced Ford Fairlanes and Chevrolet Bel Airs. In turn, the low priced Custom (Ford) and Delray (Chevy) series will drop out, and the small cars can be slipped in underneath.

Small Cars Not So Small

What will the small cars look like? How much will they cost? Trade talk has it that neither Ford nor GM thinks the European type small car is really what the American economy car buyer wants. But it's about all that's available.

Both firms reportedly are designing small cars nearer to AMC's Rambler in seating capacity and size. They'll also be more stylish (Ford people hint at wraparound windshields) and are expected to have simple automatic transmissions as optional equipment. In keeping with economy demands, styles aren't expected to change often.

GM Program—Chevrolet is ramrodding GM's small car design, although the body will be the responsibility of Fisher Body Div., say informants. It reportedly is a four passenger, unit body job with a rear engine and transmission. Wheelbase is around 102 to 104 in.

Several engines have been considered, but a 4-cylinder, inline model with 150 cu in. displacement seems to have the edge now. Chevrolet has also looked at a V-6 and a flat opposed 6-cylinder engine (which reportedly hasn't panned out).

Competition — Other sources say Ford is down to three possibilities. One has a 90-in. wheelbase. Another is about the size of GM's imported Opel, and the third is a unitized job with a 106-in. wheelbase.

The last is the one Ford currently thinks has the best chance. The company reportedly believes its 4-cylinder tractor engine (172 cu in.) might be the best power plant, although, like GM, Ford has other engines under consideration.

Production—Ultimately, GM indicates, it is thinking in terms of building half a million units a year in three different plants—one at Willow Run, Mich., another on the West Coast, and a third may be in Kansas City, Mo.

Ford's ambitions don't seem so vast. But this could be because the company still may import its German Taunus. Anyway, Ford's goal seems to be about 150,000 units annually. Chicago, Dallas, Maywood, Calif., Lorain, Ohio, and Kansas City are being investigated as potential assembly sites.

Not Cheapies — Since it costs almost as much to tool up for a small car as for a big one, prices won't be as low as those of many European offerings. But automakers figure even economy buyers will pay more initially for a car they can keep awhile without having it become outdated. The market will expand in proportion to the increase in total car sales (expected to be brought on by population growth).

Talk has it GM is aiming $150 to $200 under its present Chevrolet Delray which has a base advertised delivered price of $2155. Ford will be close to that.

Outlook—The industry is trying to meet buyers' demands for a more economical car without slashing the big car markets. By the end of next month, GM should have decided whether to wait or to go ahead for 1960.

U. S. Auto Output

Passenger Only

	1958	1957
January	489,357	641,591
February	392,112	571,098
March	357,049	578,826
April	316,503	549,239
4 Mo. Total	1,555,021	2,340,754
May	.....	531,365
June	.....	500,271
July	.....	495,629
August	.....	524,354
September	.....	284,265
October	.....	327,362
November	.....	578,601
December	.....	534,714
Total	.....	6,117,315

Week Ended	1958	1957
Apr. 19	73,219	118,327
Apr. 26	58,664	123,633
May 3	78,434	119,999
May 10	78,506	125,924
May 17	86,713†	172,390
May 24	80,000*	127,428

Source: *Ward's Automotive Reports.* †Preliminary. *Estimated by STEEL.

ND FACTS

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Good ideas get a lot of "mileage"! Take this special automotive bearing pioneered by New Departure. Its unique advantages have been proved by billions of miles in millions of cars and trucks. But "miles-in-use" doesn't begin to tell the story of fan and water pump shaft ball bearing. For design engineers in other fields were quick to spot this bearing's versatility.

So today this New Departure sealed and lubricated-for-life bearing with integral shaft eliminates bearing upkeep costs and simplifies design in a wide variety of familiar products—from home appliances to industrial tools.

If you need help with a big design idea, call or write for consultation with a New Departure ball bearing application engineer.

1908–1958
GM
FORWARD FROM FIFTY

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Graph-Mo® dies cut downtime 50% on deep draw for round vacuum cleaner!

ENGINEERS at The Hoover Company had a tough problem in getting that round vacuum cleaner shape in the new Constellation. The two circular dies that form the hemispheres often galled, picking up bits of the steel being formed. This scored the dies, marred the finished parts. Production had to be shut down while the dies were repolished. And extra polishing of the hemispheres ran up costs still more.

After studying the problem, Timken Company metallurgists recommended dies made from Graph-Mo®—a special tool steel developed by the Timken Company. Results were outstanding. The new Graph-Mo dies cut downtime 50%. The combination of free graphite particles and diamond hard carbides in its structure make it outwear other tool steels 3 to 1. Production rolled smoothly and refinishing time was cut.

Graph-Mo machines 30% easier than conventional tool steels. And its uniform response to heat treatment eliminates distortion—saves time and money in lots of tough jobs.

Graph-Mo is one of four graphitic tool steels developed by the Timken Company. If you would like more information about their uses in dies, punches, gages and machine parts, send for the new Timken Graphitic Steel Book. The Timken Roller Bearing Company, Steel and Tube Division, Canton 6, Ohio. Cable address: "TIMROSCO".

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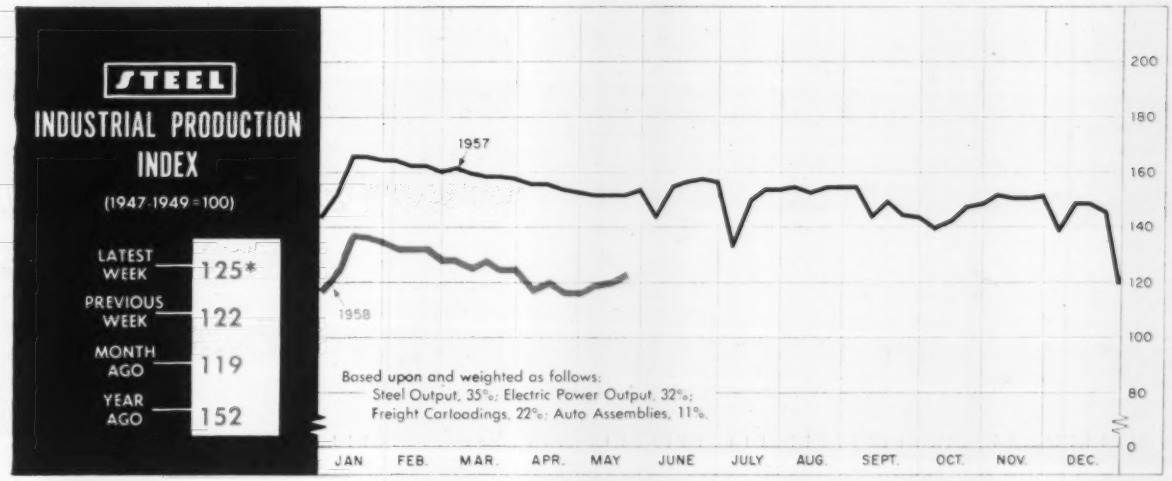


*Week ended May 17.

Index Shows Third Consecutive Advance

FOR THE FIRST TIME in 41 weeks (with the exception of the post-Christmas period) every segment of STEEL's industrial production index increased from the previous week's reading. In some cases, the improvement was barely noticeable, but the combined effect raised the index to a preliminary 125 (1947-49 = 100) for the week ended May 17. That's the highest level in seven weeks.

Factors in Pickup—1. With the arrival of the first ore boats at lower lake ports, railroad activity this month began a gradual climb. Carloadings of freight are now above the 535,000-car level for the first time in over two months. 2. Steel production in the week ended May 18 totaled 1,412,000 net tons for ingots and castings, and steelmakers scheduled about 1,480,000 tons last week. That's the best output since the last week in January.

3. Auto and truck production is surprisingly strong at a little over 100,000 units a week, an increase of over 25,000 units since the lowest point of the year was reached in late April. 4. Perhaps most surprising of all, though, is the contraseasonal rise of electric energy production. At a little over 11.3 billion kw-hr a week, this is showing the most strength since late in March.

A Bit Short—Despite the increase of almost 6 per cent in the index from its lowest point (118 during the week ended Apr. 26), the upswing probably will fall short of seasonal standards. This could result in a slight decline in the Federal Reserve Board's industrial production index for May. In April, that guidepost stood at 126 (1947-49 = 100) seasonally adjusted.

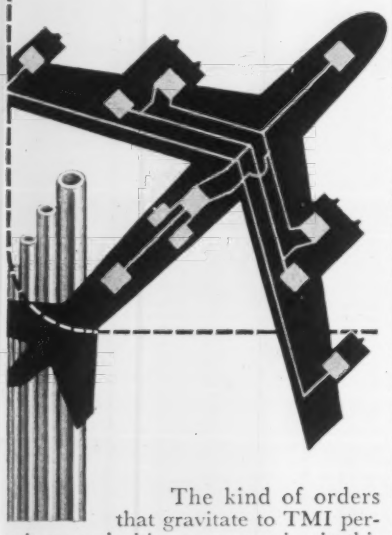
Clouded — As good as it looks right now, the future of STEEL's index is probably more uncertain than at any time since the start of the recession. Reason: Probable early shutdown and long changeover period in the auto industry. Currently, this segment is

BAROMETERS OF BUSINESS

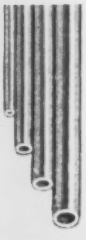
	LATEST PERIOD*	PRIOR WEEK	YEAR AGO
INDUSTRY			
Steel Ingot Production (1000 net tons)[2]	1,481[1]	1,412	2,212
Electric Power Distributed (million kw-hr)	11,350[1]	11,315	11,519
Bituminous Coal Output (1000 tons)	6,200[1]	6,350	9,602
Crude Oil Production (daily avg—1000 bbl)	6,220[1]	6,220	7,511
Construction Volume (*ENR*—millions)	$435.4	$380.6	$357.7
Auto, Truck Output, U. S., Canada (*Ward's*)	113,197[1]	105,188	162,537
TRADE			
Freight Carloadings (1000 cars)	535[1]	535	723
Business Failures (Dun & Bradstreet)	279	336	267
Currency in Circulation (millions)[3]	$30,812	$30,659	$30,654
Dept. Store Sales (changes from year ago)[3]	−4%	−8%	+3%
FINANCE			
Bank Clearings (Dun & Bradstreet, millions)	$21,640	$24,456	$20,681
Federal Gross Debt (billions)	$274.9	$275.0	$273.3
Bond Volume, NYSE (millions)	$22.6	$24.2	$19.1
Stocks Sales, NYSE (thousands of shares)	13,308	14,104	13,086
Loans and Investments (billions)[4]	$92.0	$92.5	$86.1
U. S. Govt. Obligations Held (billions)[4]	$30.5	$30.5	$25.6
PRICES			
STEEL's Finished Steel Price Index[5]	239.15	239.15	228.59
STEEL's Nonferrous Metal Price Index[6]	196.9	197.1	231.4
All Commodities[7]	119.5	119.3	117.2
Commodities Other than Farm & Foods[7]	125.4	125.4	125.3

*Dates on request. [1]Preliminary. [2]Weekly capacities, net tons: 1958, 2,699,173; 1957, 2,559,490. [3]Federal Reserve Board. [4]Member banks, Federal Reserve System. [5]1935-39=100. [6]1936-39=100. [7]Bureau of Labor Statistics Index, 1947-49=100.

there's NO room for Ordinary Tubing at TMI



The kind of orders that gravitate to TMI permit no such thing as pampering in this busy "little" mill. They do, however, make us pull out every stop in cold drawing skills to keep pace with the demands for perfection written on those orders! In stainless steel or in special alloy . . . the TMI goals and the TMI results are the same: we keep our thinking and our methods flexible enough to tackle the impossible specifications with confidence while we remain steadfast in our precision workmanship. Put TMI and TMI tubing to the test—any test—and you'll know why leading pioneers in metalworking work hand-in-hand with our people. We'd like to work *with* and *for* you.



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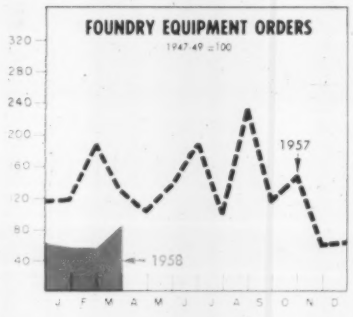
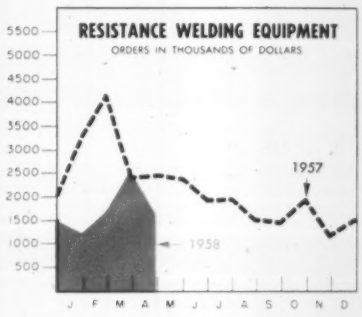
THE BUSINESS TREND





	1958	1957	1956
Jan.	57.9	117.9	195.6
Feb.	57.6	188.4	169.0
Mar.	85.9	127.0	152.7
Apr.	....	101.1	135.2
May	....	136.2	207.0
June	....	187.5	156.7
July	....	98.6	110.3
Aug.	....	231.3	188.3
Sept.	....	113.9	114.7
Oct.	....	145.3	122.2
Nov.	....	59.6	121.0
Dec.	....	61.4	115.6
Avg	....	130.7	149.0

Foundry Equipment Mfrs. Assn.

	Net Orders 1958	Net Orders 1957	Shipments 1958	Shipments 1957
Jan.	1,243	3,310	1,422	3,161
Feb.	1,683	4,161	1,615	2,386
Mar.	2,550	2,360	1,659	2,845
Apr.	1,684*	2,429	1,963*	3,111
May	....	2,340	....	2,891
June	....	1,936	....	2,735
July	....	1,943	....	3,194
Aug.	....	1,501	....	2,591
Sept.	....	1,463	....	2,528
Oct.	....	1,933	....	1,953
Nov.	....	1,167	....	2,227
Dec.	....	1,501	....	1,969
Totals	....	26,044	....	31,591

*Preliminary.
Resistance Welder Manufacturers Assn.

Charts copyright, 1958, STEEL.

contributing about 10 points to the over-all index. *Ward's Automotive Reports* adds support to the contention that producers will start phasing out 1958 model production in July, with '59 introductions scheduled for September or October.

How this will affect steel production depends on the forward buying policies of the automakers for new model buildups. While those policies are not yet well defined, it is logical to assume that with assembly lines down in whole or in part for three months, there will be no rush to stock steel.

Get Ready—This should set the stage for a fall revival that will push production to the year's best level by the fourth quarter. Not only will auto production climb, but output of other durable goods should start rising at the same time. Economists and business analysts are beating the drums at conventions this year as seldom before, and the consensus is overwhelmingly for an upturn in the general economy in the fourth quarter.

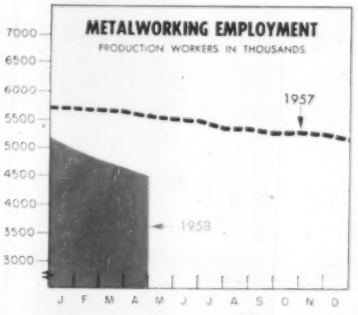
Presidents Optimistic

Adding to the current optimism is a report from the American Management Association that a majority of 688 company presidents responding to a nationwide survey expect to match or better their 1957 sales this year. (The preliminary report does not give an industry-by-industry breakdown of the findings.) Despite anticipated sales increases, 57 per cent of the executives say that profits will fall, compared with 1957.

Other results of the survey: 1. 54.3 per cent of the companies expect to match or exceed last year's capital expansion. 2. 93.4 say they will spend as much as or more than they did last year on research and new product development. 3. Almost all will maintain or improve upon their direct sales effort and advertising and sales promotion budgets.

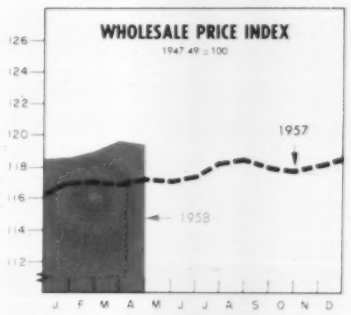
Equipment Orders Edge Up

Mild encouragement also comes from the monthly reports of two industry associations for durable goods. The Material Handling Institute Inc.'s latest bookings report (for March) moved up for the second straight month to 97.89 (1957 = 100). Industry leaders feel that this uptrend will continue, but that significant increases will not be



1957	Prim. Mtls.	Fab. Prod.	Mach- inery	Elec. Mchy.	Trans. Equip.
Apr.	1,101	889	1,277	853	1,446
May	1,093	883	1,255	847	1,435
June	1,093	887	1,239	855	1,415
July	1,075	869	1,207	848	1,373
Aug.	1,077	878	1,180	861	1,363
Sept.	1,061	878	1,186	879	1,278
Oct.	1,049	889	1,166	869	1,321
Nov.	1,029	887	1,141	852	1,350
Dec.	1,006	868	1,122	824	1,342
1958					
Jan.	957	833	1,097	792	1,276
Feb.	911	800	1,072	765	1,214
Mar.*	886	782	1,052	747	1,163
Apr.*	853	767	1,031	729	1,098

*Preliminary.
U. S. Bureau of Labor Statistics.



	All Commodities 1958	All Commodities 1957	Other Than Farm & Foods 1958	Other Than Farm & Foods 1957
Jan.	118.9	116.9	126.2	125.2
Feb.	119.0	117.0	125.7	125.5
Mar.	119.7	116.9	125.7	125.4
Apr.	119.4	117.2	125.6	125.4
May	....	117.1	....	125.2
June	....	117.4	....	125.2
July	....	118.2	....	125.7
Aug.	....	118.4	....	126.0
Sept.	....	118.0	....	126.0
Oct.	....	117.8	....	125.7
Nov.	....	118.1	....	125.9
Dec.	....	118.5	....	126.1

U. S. Bureau of Labor Statistics.

noticed until the first or second quarter of 1959.

The order index of the Foundry Equipment Manufacturers Association climbed to 85.9 (1947-49 = 100) in March, the best level since last October. Comments one observer: "This is a healthy sign, but it will have to continue climbing to catch up with a normal year's total." April may not be much better than March, but sales in May and June may show some upturn as a result of the American Foundrymen's Society meeting and show in Cleveland last week.

Not so encouraging is the April report of the Resistance Welder Manufacturers Association. It shows a fall in new orders after two months of significant increases. Orders dropped from March's $2,550,000 to $1,684,000, equal to the February total.

Inventories Near Bottom

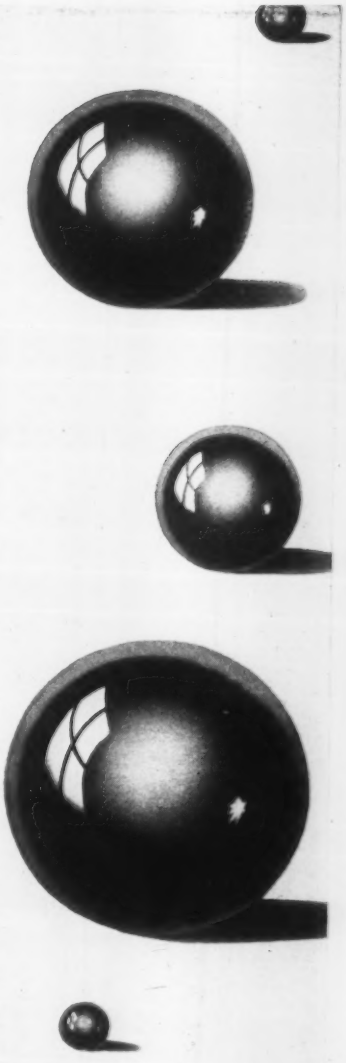
Two more steel industry executives have pointed to the correction of the inventory situation as a prime force in the anticipated fourth quarter (or earlier) upturn in that industry. Joseph L. Block, president of Inland Steel Co., Chicago, states: "Up to Apr. 1, there has been a reduction of about 7 million tons in steel inventories . . . during the second quarter there may be an additional 3-million-ton reduction, so that by the end of this quarter . . . there will be a 10-million-ton reduction in steel inventories." Steel users will have to increase their buying to maintain operations, he says.

Charles M. White, chairman of Republic Steel Corp., Cleveland, believes the "combination of a much improved inventory situation and normal seasonal patterns should result in better production in the fourth quarter."

Trends Fore and Aft

• Business failures dipped below the 300 mark for the third time this year when they totaled 279 during the week ended May 8, reports Dun & Bradstreet Inc., New York. In a special study of 1957 failures, D&B says that even though the total set a new record, the rate was still well below the heavy toll of 1939.

• The total for heavy construction awards during the week ended May 15 ($435.4 million) has been exceeded only three times this year, says *Engineering News-Record*.



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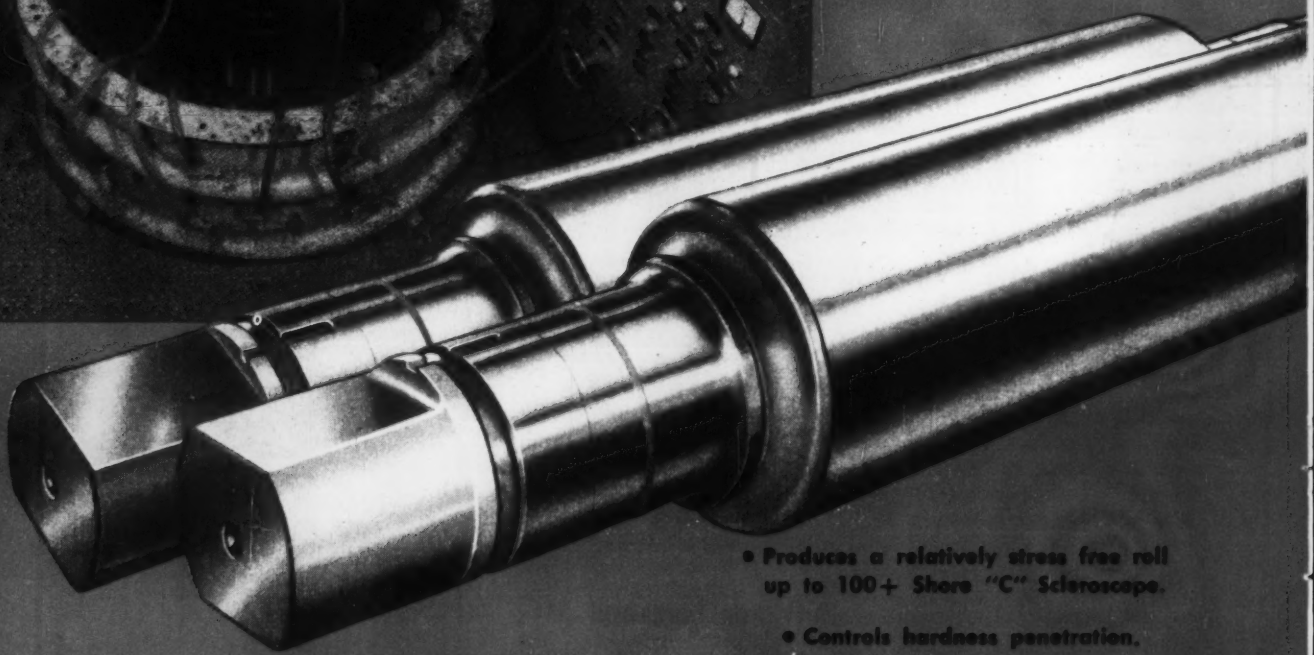

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MICHAEL ZAJAC
Buhr Machine Tool v. p.

JOHN A. McGUIRE
Thor Power Tool exec. v. p.

ALAN F. KELSEY
joins Marchant Calculators

C. D. CLAPP
Hauserman dir.-manufacturing

Michael Zajac was named to the new post of vice president-engineering, **Buhr Machine Tool Co.**, Ann Arbor, Mich. He was chief engineer.

John A. McGuire was elected an executive vice president, **Thor Power Tool Co.**, Chicago. He was vice president and handled the company's labor policies and other executive functions. He now will work on integrating the company's five subsidiary plants.

William H. C. Webster was elected vice president-administration, **Great Lakes Steel Corp.**, Ecorse, Mich., a unit of National Steel Corp.

Harold Tiley, former general sales manager, fills a new post of customer relations manager for **Caloric Appliance Corp.**, Jenkintown, Pa. **Harry J. Levin**, former assistant general sales manager, was named sales co-ordinator.

John Anderson was promoted to assistant general manager; **Daniel L. Janoff** to chief engineer, material handling division, **Heppenstall Co.**, New Brighton, Pa.

John J. Willis was elected a vice president of **Illinois Engineering Co.**, Chicago, a subsidiary of American Air Filter Co. Inc. He continues to serve as sales manager.

Robert E. Kemelhor was named manager of future product planning and development for the **Pesco Products** and **Wooster divisions** of Borg-Warner Corp., Bedford, Ohio.

Alan F. Kelsey joined **Marchant Calculators Inc.**, Oakland, Calif., as director of manufacturing. He held a similar post at Magna Power Tool Corp., and prior to that was vice president in charge of engineering and manufacturing at Hiller Engineering Corp.

Wencel A. Neumann Jr. was elected president, **De Laval Separator Co.**, Poughkeepsie, N. Y. He also was elected president of the West Coast subsidiary, De Laval Pacific Co., Millbrae, Calif. **C. B. Schmidt**, whom Mr. Neumann succeeded, was named vice chairman. Mr. Neumann joined the company in 1954 as executive vice president-manufacturing.

Dorr-Oliver Inc., Stamford, Conn., elected **James B. Hoxie** vice president-production; **Albert L. Morris**, vice president-company relations.

Carl E. Rowe was elected president, **Milwaukee Valve Co.**, Milwaukee, subsidiary of Controls Co. of America. He was vice president-general manager.

E. L. Oehling was promoted from general sales manager to vice president-sales, **Hydraulic Press Mfg. Co.**, a division of Koehring Co., Mt. Gilead, Ohio. **T. G. Bishop**, former manager, plastics machinery division, was made product market manager. **W. G. Kriner**, manager of dealer sales, replaces Mr. Bishop.

George A. Markell was appointed sales manager, **Elwell-Parker Electric Co.**, Cleveland. He was assistant sales manager.

C. D. Clapp was appointed director of manufacturing, **E. F. Hauserman Co.**, Cleveland. He was general superintendent. **W. B. Sauer**, former manager of Steel Ceilings Inc., was named manager of Hauserman's Cleveland plant.

Robert O. Bass was elected president and general manager, **Morse Chain Co.**, Ithaca, N. Y., subsidiary of Borg-Warner Corp. He was executive vice president and assistant general manager. Mr. Bass succeeds **Stanley J. Roush**, who relinquishes duties in Ithaca to devote more time to his responsibilities as group vice president in Borg-Warner's central office in Chicago.

Raymond H. Jones was promoted to director of profit control and computer programs at **Sharon Steel Corp.**, Sharon, Pa. He was general auditor. Succeeding him is **S. M. Cebulko**.

Stanley E. Huffman Jr. fills the new post of sales manager, press division, **E. W. Bliss Co.**, Pittsburgh. He was with Pratt & Whitney Co.

Allen W. Lishawa was appointed sales manager, special engineering products division, **International Business Machines Corp.**, New York.

Howard F. White, co-founder and formerly executive vice president, **Revco Inc.**, Deerfield, Mich., was elected president to succeed **G. F. Forsthoefel**, now chairman.

Aldo L. Tombari was made chief industrial engineer in charge of all

EDWARD K. WELLES

WARREN C. OLSON

new officers at Besly-Welles Corp.

ROBERT F. GLADFELTER

JOHN M. SMALL

Detroit Power Screwdriver executives

operations of **Hettrick Mfg. Co.**, Toledo, Ohio.

Edward K. Welles was elected chairman and chief executive officer, **Besly-Welles Corp.**, South Beloit, Ill. **Warren C. Olson**, executive vice president, was elected president and chief administrative officer.

Walter A. Sterling, president, **Cleveland-Cliffs Iron Co.**, Cleveland, was elected to the additional position of chairman to succeed **Alexander C. Brown**, retired. **W. E. Donahl** was elected comptroller. **D. E. Sadler** was made special assistant-finance.

David Ferguson was appointed controller, **Copperweld Steel Co.**, Pittsburgh.

Herbert E. Markley was elected a vice president of **Timken Roller Bearing Co.**, Canton, Ohio. He will be responsible for all foreign operations. Formerly assistant to the president, he is succeeded by **Richard L. Frederick**, who has been director of industrial relations.

Robert F. Gladfelter was elected president, **Detroit Power Screwdriver Co.**, Detroit, subsidiary of Link-Belt Co. He succeeds **Roy W. Bailey**, retired. **John M. Small** was elected vice president and treasurer. He was plant superintendent.

Milo L. Phillips was elected vice president, **Alloys & Chemicals Mfg. Co. Inc.**, Cleveland. He continues as sales and operations manager, and will direct technical policies.

Hillery G. Knecht was elected vice president-manufacturing and engineering, **Stran-Steel Corp.**, Detroit, unit of National Steel Corp. **C. H. Wheeler Jr.**, who headed the engineering division, has resigned.

Joseph A. Anderson, general manager, **AC Spark Plug Div.**, Flint, Mich., was elected a vice president of General Motors Corp.

Dan T. Buist was elected vice president - marketing, **Turco Products Inc.**, Los Angeles. He was director of sales. **Archie K. Beard** was made general sales manager. **Steward B. Van Dyne** was named assistant to vice president-marketing.

Earl R. Skaggs was appointed executive vice president, **Townsend Engineered Products Inc.**, Santa Ana, Calif., subsidiary of Townsend Co. He is responsible as general sales manager for engineering, administration and manufacturing at the Santa Ana plant.

John D. Hulser was made manager of marketing for **Trion Inc.**, McKees Rocks, Pa.

Robert J. Higley was named vice president-planning, **Hupp Aviation Co.**, subsidiary of Hupp Corp., Chicago. He was controller. His new duties include production planning, procurement, material control, and use of electronic computer and data processing equipment.

George T. Brent was made chief engineer; **Bruce W. Kinney**, quality control supervisor, for **Circuit Instruments Inc.**, St. Petersburg, Fla.,

HERBERT E. MARKLEY

RICHARD L. FREDERICK

Timken Roller Bearing executives

DAN T. BUIST

ARCHIE K. BEARD

Turco Products executive promotions

Look at these pump parts

after a 40-month run with HOUGHTO-SAFE water-glycol fire-resistant fluid!

HERE'S PROOF of the lubricating ability of Houghto-Safe 620, Houghton's water-base fire-resistant hydraulic fluid. These rings and vanes, removed from the pump, show only negligible wear after more than 3 years of service.

The Houghto-Safe fluid was operating in the combination hydraulic pump of a production die casting machine. Mineral oil previously used was replaced by the Houghto-Safe to eliminate danger of fires and to cut downtime involved in regular oil changes.

Length of service for the fluid was 40 months. Maintenance was limited only to regular water make-up—about 1 quart per month—in the 160 gallon reservoir.

You see, above, what maintenance engineers found when they tore down the pump. The Houghto-Safe was in its original condition after 40 months of service and the appearance of the parts proves that Houghto-Safe 620 can be used even in applications where lubricity and corrosion protection are critical.

Write for our folder on Houghto-Safe 620 Fire-Resistant Hydraulic Fluid. The address: E. F. Houghton & Co., 303 West Lehigh Avenue, Philadelphia 33, Pa.

HOUGHTO-SAFE 620

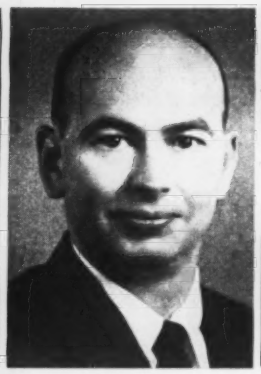
. . . a product of

E. F. HOUGHTON & CO.

PHILADELPHIA • CHICAGO • DETROIT • SAN FRANCISCO

Ready to give you on-the-job service . . .

LEWIS A. CURTIS
Package Machinery president



C. TAYLOR MARSHALL
Pittsburgh Coke & Chem. v. p.

DR. WILLIAM H. DUERIG
Midwestern Instruments v. p.

DAVID S. ZAHNISER
Levco v. p.-sales

RICHARD M. STAFF
Eastern Rolling Mills post

C. W. OESTERLEIN
Reynolds plant manager

subsidiary of International Resistance Co.

David S. Zahniser was made vice president-sales, **Levco Corp.**, Pittsburgh, national distributor for the warehousing and fabricating divisions of Levinson Steel Co. He was general sales manager.

Richard M. Staff was appointed works manager of **Eastern Rolling Mills Inc.**, New York. He was a project engineer at Curtiss-Wright Corp.

William T. Holmes was appointed sales manager, **Lafayette Steel & Aluminum Corp.**, Chicago, subsidiary of Caspers Tin Plate Co.

William E. McFarlane was made Atlanta district manager, **Hubbell Metals Inc.** He was manager of the stainless steel department and is succeeded by **John O'Fallon.**

Joel S. Tompkins was named chief power engineer for **Aluminum Co. of America**, Pittsburgh.

C. W. Oesterlein was named manager of **Reynolds Metals Co.'s** foil printing plant at St. Louis. He was plant superintendent.

Russell Radom was named general manager-industrial sales of **Lindsay Structure Div.**, recently acquired by International Steel Co., Evansville, Ind.

J. J. McGrann was named Los Angeles district manager of **Timken Roller Bearing Co.'s** steel and tube division. He replaces the late **S. Robert Kallenbaugh.**

Luria Bros. & Co. Inc. made **Mervin H. Luria** district manager, Pacific Coast area, with headquarters in Los Angeles.

John T. Thompson was appointed manager of the new distributor products division of **Raytheon Mfg. Co.**, Waltham, Mass.

Glen F. Crist was made general superintendent, **Clemco Aero Products Inc.**, Compton, Calif.

Lewis A. Curtis, former vice president-sales, **Package Machinery Co.**, East Longmeadow, Mass., was elected president. **Roger L. Putnam Jr.** was elected executive vice president; **J. Edwin Hanson**, treasurer. Mr Putnam was vice president-manufacturing. Mr. Hanson will continue as controller. **Donald H. Dalbeck**, president and treasurer for the last two years, has resigned.

C. Taylor Marshall, general manager, coke and iron division, was elected a vice president of **Pittsburgh Coke & Chemical Co.**, Pittsburgh. As vice president-coke and iron division, Mr. Marshall is responsible for production, marketing, and sales of pig iron, ferromanganese, coke and coke byproducts, and for long range raw material planning.

Dr. William H. Duerig was elected vice president-research and engineering, **Midwestern Instruments Inc.**, Tulsa, Okla. He was manager of the engineering research and development division of Electro-Mechanical Research Inc.

OBITUARIES...

John J. Inman, St. Louis district manager, **American Lead & Zinc Co.**, died May 10.

Clarence L. Corban, 54, manager of coke production, **Inland Steel Co.**, Chicago, died May 13.

J. M. O'Connell, 69, president, **O'Connell Machinery Co. Inc.**, Buffalo, died May 10.

Dale Cox, 56, director of public relations for **International Harvester Co.**, Chicago, died May 14.

John T. Dillon, 74, chairman, **Struthers Wells Corp.**, Titusville, Pa., died May 12.

Frank B. Sanborn, 93, founder and chairman, **Sanborn Co.**, Waltham, Mass., died May 16.

Robert J. Casterton, 42, sales manager, New York district, **Spang-Chalfant Div.**, National Supply Co., died May 14.

Alexander S. Keller, 53, vice president-general sales manager, **Pratt & Whitney Div.**, West Hartford, Conn., United Aircraft Corp., died May 17.

Ask for a sample TEST BAR

of *La Salle's* revolutionary

fatigue-proof steel

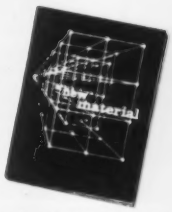
The steel bar that has high strength WITHOUT HEAT TREATING

Yes, La Salle invites you to test a sample bar of the remarkable new FATIGUE-PROOF. This amazing new material is its own best recommendation . . . as proven by the many original equipment manufacturers who have already tested (and are using) FATIGUE-PROOF.

If you are making parts requiring strengths in the tensile range of 140,000 to 150,000 psi, and want to eliminate the expense or problems of heat treating . . . if you want to save production costs with a bar that machines faster (25% faster than annealed alloys—50% to 100% faster than heat treated alloys) and gives you a beautiful finish, too . . . if you want to improve the quality of your product while saving money, send us a blueprint, drop us a note giving application details, or better yet . . . pick up your telephone and call a La Salle sales engineer (REgent 4-7800, Chicago, Illinois).

FREE

Get your copy of "a new material," a 24-page booklet which gives detailed information on La Salle "FATIGUE-PROOF"® steel bars.



La Salle **STEEL CO.**

1414 150th STREET • HAMMOND, INDIANA

Manufacturers of America's Most Complete Line of Quality Cold-Finished Steel Bars

Please send me your "FATIGUE-PROOF" Bulletin.

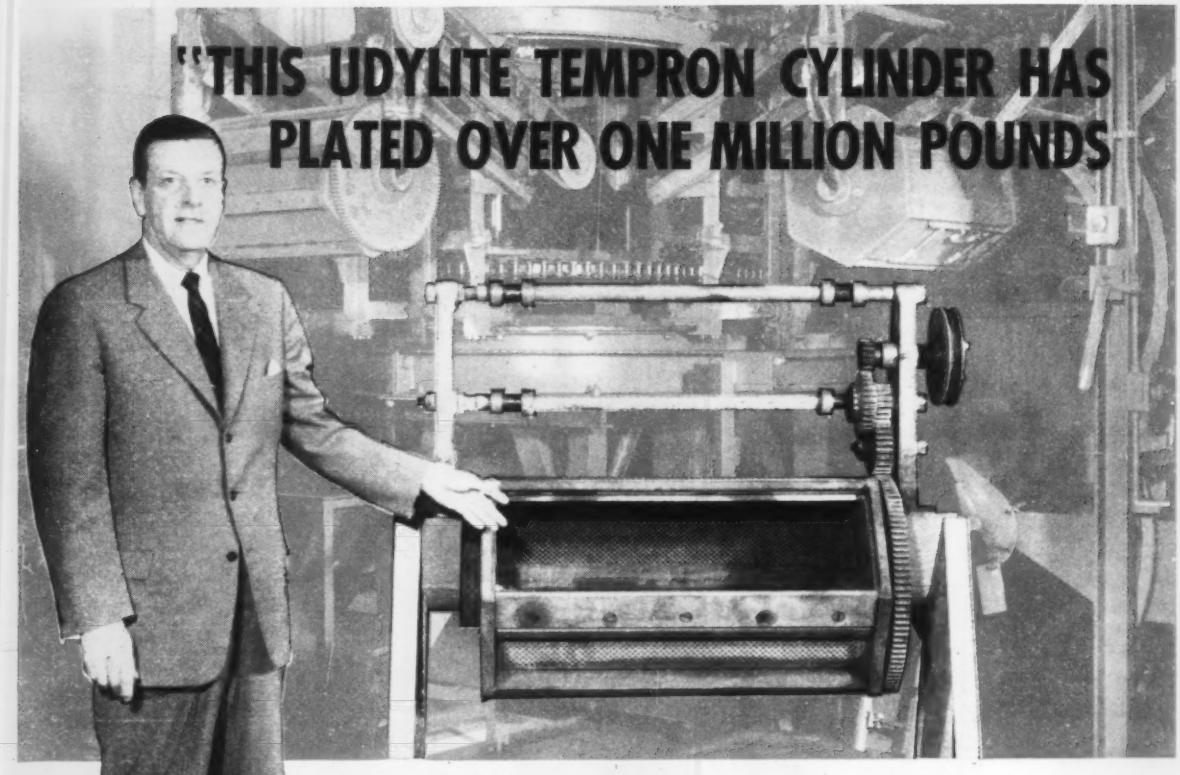
Name_____

Title_____

Company_____

Address_____

City_____ Zone_____ State_____



"THIS UDYLITE TEMPRON CYLINDER HAS PLATED OVER ONE MILLION POUNDS

. . . AND IT'S READY FOR MILLIONS MORE!"

says Al Betteley, Bellevue Plating, Detroit, Michigan

"*We have discovered,*" continues Mr. Betteley, "*that because of their rugged construction and amazing heat and abrasion qualities, these plating cylinders are the most economical and desirable we have ever used. We process up to 200 pounds of work in 14" x 30" cylinders at temperatures up to 212°F. with no damage or softening. Then, contrasting this, we immediately rinse them in cold water. Their ability to withstand these terrific temperature variances allows for greater production and the unique design makes maintenance a very simple task. In short, we're satisfied with Udylite Tempron cylinders. They give us more for our money!*"

Like so many other platers, Bellevue Plating has discovered the advantages Udylite Tempron construction has to offer. If you desire full production with a minimum of maintenance, you'd better make the *discovery*, too. Your local Udylite representative has the full story of how they can benefit you and your plating operation. Call him today, or write direct to:

the **udylite** corporation

detroit 11, michigan • world's largest plating supplier

Use of Oxygen in Steelmaking Soars

National average is now 200 cu ft of the gas for every ingot ton produced. Linde will build huge plant and pipeline to serve four U. S. Steel plants on Monongahela River

LINDE CO., a division of Union Carbide Corp., New York, will build a huge oxygen plant to serve four of U. S. Steel Corp.'s plants on the Monongahela River, south of Pittsburgh.

The 1000 ton-per-day plant (equivalent of 730 million cu ft of 99.5 per cent pure oxygen per month) will be built at the Duquesne Works. Oxygen will be distributed by pipeline to the Edgar Thomson Works, Braddock, Pa.; Homestead Steel Works, Munhall, Pa.; and National Works of National Tube Div., McKeesport, Pa. Provision is made for future extension of the pipeline to Carrie Furnaces, Rankin, Pa.

Forecast Revised Upward — The new plant will replace Linde's oxygen capacity already installed at Homestead, Edgar Thomson, and National Works. Last June, at Duquesne, Linde put on stream a 500 ton-per-day plant. That capacity is not enough to handle predicted future requirements at these four steelworks.

The project is evidence of U. S. Steel's confidence in the expanding future of steel, and of the role of oxygen in its steelmaking processes. Use in steelmaking has climbed from about 30 cu ft per ton in 1930 to the present national average of 200 cu ft for every ingot ton produced.

Today, about half of a steel mill's usage is in steelmaking processes and half in such practices as scarfing, cutting, and scrap preparation.

In the not-too-distant future, metallurgical uses are expected to take and hold the lead, because in an increasing number of cases the use of oxygen has become a low-cost alternate to building additional furnace capacity to meet the nation's future demands for steel.

Plans $3-Million Plant

National Cylinder Gas Div., Chemetron Corp., Chicago, is building a $3-million liquid oxygen, nitrogen, and argon plant near Philadelphia. Capacity of the plant will be more than 65 tons of these gases a day and can be expanded as demand increases. Production of oxygen is scheduled to start early in 1959.

Oxygen to be used in the new H-iron process of iron powder production at a Conshohocken, Pa., plant being built by Alan Wood Steel Co. (STEEL, Apr. 28, p. 83) will be supplied via a direct pipeline.

In addition, the NCG plant will increase supplies of high-purity oxygen, nitrogen, and argon for distribution to other east coast industries.

Giddings & Lewis Expands

Giddings & Lewis Machine Tool Co., Fond du Lac, Wis., purchased the land and buildings of Prescott Co., Menominee, Mich. The purchase was aimed primarily at acquiring another gray iron foundry to supplement that Giddings & Lewis has at Kaukauna, Wis. The rest of the plant, including facilities for making sawmill machinery and diesel engines, plus a contract machine shop, will continue to be operated by the Prescott firm under a lease arrangement with Giddings & Lewis. Prescott Co. remains an independent company.

Streamlines Production

Alco Products Inc., Schenectady, N. Y., has completed the first phase of a $4-million modernization program to streamline production and integrate plant facilities into a smaller area. Three production buildings have been extensively renovated and a fourth has been converted to house seven laboratories (nuclear power, radiochemistry, heat transfer, welding, instrumentation, metallurgy, chemistry and mechanics).

Officials say the new plant is the only straight-line assembly set-up of its type. A large portion of

(*Please turn to Page* 88)

Fischer

"Special" is our middle name! We make millions of odd-size brass and aluminum nuts for all types of equipment. Unique high-speed machinery turns all Fischer nuts to exacting specifications. Extreme uniformity, competitive prices and prompt delivery assure you of substantial savings in cost and time.

Next time you need "special" brass or aluminum nuts, contact Fischer for fast action . . . premium quality.

there's no premium for precision at

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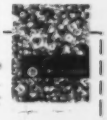
SPECIAL MFG. CO.

TURNED NUTS Fischer SPECIAL MFG. CO. CINCINNATI OHIO SINCE 1905



FISCHER SPECIAL MFG. CO.
476 Morgan St., Cincinnati 6, Ohio
Please send your new 20-page CATALOG FS-1000 containing complete specifications on brass and aluminum nuts.
Name _____ Title _____
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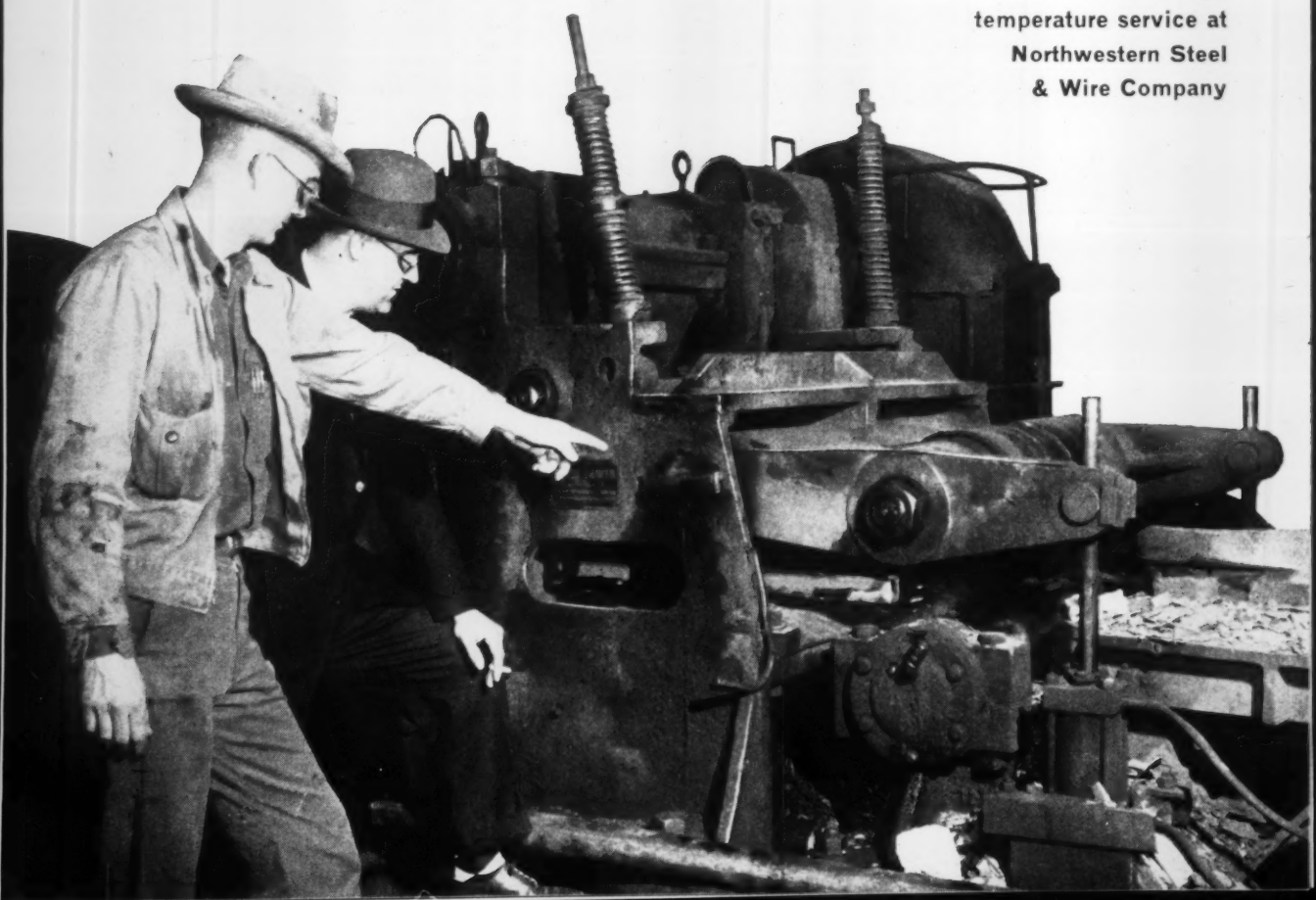
8046-FS

Shutdowns
for lubrication
cut in half
with

RYKON

Grease

Dollars in production time saved by using RYKON in high temperature service at Northwestern Steel & Wire Company



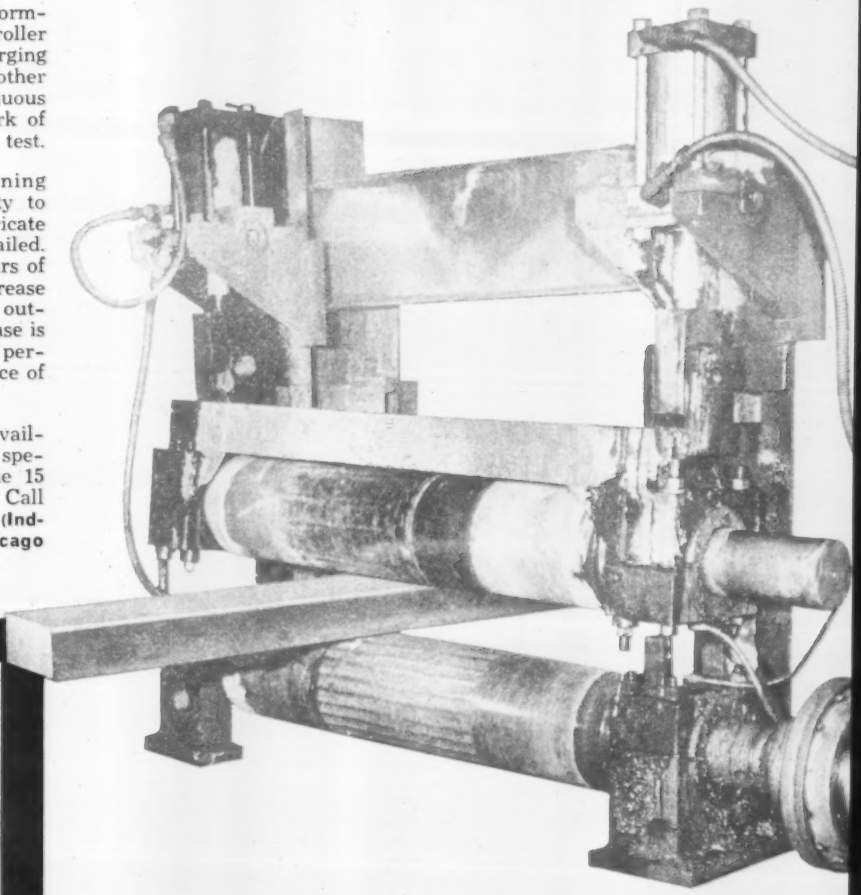
Bearings on the 46-inch blooming mill manipulator and side guard carrier had to be lubricated twice each eight-hour shift before RYKON Grease was used. The mill had to be shut down while the lubrication work was performed. Now with RYKON, the bearings are greased once each shift. Maintenance men find rollers and pins are still well lubricated. The rollers are subject to almost constant heat and water washing. Steel blooms heated to approximately 2300° F. are just 18 inches away from the RYKON lubricated bearings. The lubricating properties of the grease are unaffected by the heat.

RYKON Grease delivers similar performance results elsewhere in the plant. In roller bearings on the reheating furnace charging tables, in pinch roll bearings and in other trouble spots, where heat and continuous water washing would make short work of other greases, RYKON stands up to the test.

A unique nonsoap, organic thickening agent gives RYKON Grease the ability to provide lubrication in tough-to-lubricate spots long after other greases have failed. This thickener is the result of five years of research effort by a Standard Oil grease research team working to develop an outstanding industrial grease. RYKON Grease is a true multipurpose grease capable of performing all lubrication jobs on one piece of equipment or often in an entire plant.

More facts about RYKON Grease are available from the Standard Oil lubrication specialist that is near you in any of the 15 Midwest and Rocky Mountain states. Call him. Or write **Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago 80, Illinois.**

Bloom in the pinch roll. A 2300° F. bloom goes through while water washes continuously. RYKON Grease keeps this equipment lubricated at all times in spite of heat.

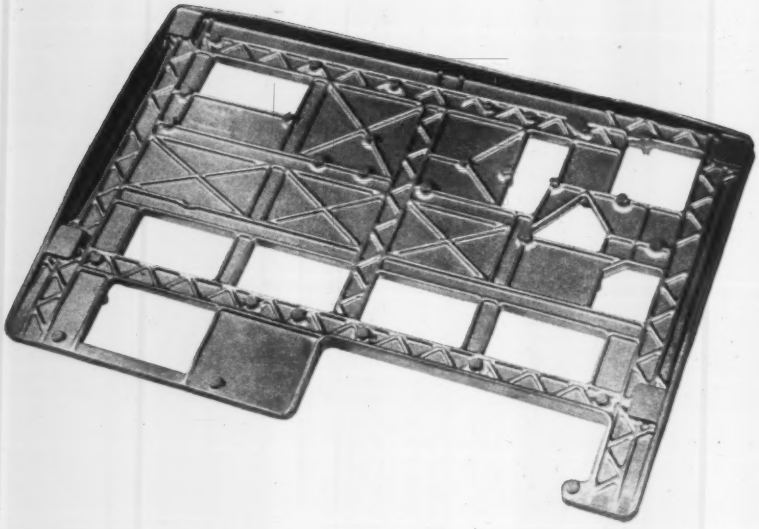


Quick facts about
RYKON Grease

- Stable at high temperatures. At sustained high temperatures RYKON Grease remains soft and grease-like.
- Resistant to water washing.
- Mechanically stable. Minimum change in consistency in service.
- Resistant to oxidation. Thickener acts as an inhibitor.
- Exceptional rust preventive properties.

You expect more from STANDARD and get it!

Lubrication time cut. Mill feeder pinch roll bearings formerly lubricated twice each eight hours. Now with RYKON Grease lubrication is needed only once each shift. Elbert Dean, Northwestern Steel lubrication engineer, and Standard Oil lubrication specialist, Charles Daub, inspect bearings. Counseling people who have lubrication jobs like this is work for which Chuck Daub is well-qualified. Chuck has 12 years' experience in lubrication technical service work. He has an engineering degree from Illinois Institute of Technology and has completed the fifteen week Standard Oil Sales Engineering School course.



EXCELLENT BASE FOR PROFITS

This ninety-six pound casting was made for the National Cash Register Co. of Nodulite®, Hamilton Foundry's ductile iron. The casting forms the base for the new Post-Tronic Accounting Machine. It measures 37½" by 23½" with sections varying from ¼" to 1½". Ductile iron was chosen for this part because of its ductility, dimensional stability, rigidity, and machinability.

Sharp pencil buyers know that the *ultimate* cost of a casting rather than the purchase price is most important to the cost of the end product. Dimensional accuracy, uniform machinability, fine surface finish, low rejects and delivery of orders on schedule result in castings at lowest ultimate cost and insure your reputation for product quality.

When new and unusual design problems arise in the selection of metal and the casting of parts, you will find that the skill and integrity of your foundry is your best insurance that specifications—and delivery schedules—will be met.

GRAY IRON • ALLOYED IRON • MEEHANITE® • DUCTILE (NODULAR) IRON • NI-RESIST • DUCTILE NI-RESIST • NI-HARD

HAMILTON FOUNDRY

The Hamilton Foundry & Machine Co., 1551 Lincoln Ave., Hamilton, Ohio • TW 5-7491

(*Concluded from Page* 85)

the project centered on building No. 62 which was converted into a progressive-station, multiline assembly operation.

Builds 10-in. Rod Mill

Sheffield Div., Armco Steel Corp., is constructing a 10-in. rod mill at its works in Kansas City, Mo., at a cost of $10 million. The mill will have a speed of 6000 fpm on rods and a production rate of up to 90 tons an hour for bar products. Rust Engineering Co., general contractor, will co-ordinate the design and erect the mill building and will install all mill machinery, auxiliary equipment, and utilities. The reheating furnace for the new mill will be designed and installed by Rust Furnace Co. Electrical installation work will be handled by Allegheny Industrial Electrical Co. Inc. Both are subsidiaries of Rust Engineering.

Develops Industrial Park

Unexcelled Chemical Corp., New York, has announced plans for the development of an industrial park on its 435-acre site in Cranbury, N. J.

Buy Canadian Company

Mosler Safe Co., Hamilton, Ont., and J&J Taylor Ltd., Toronto, Ont., have purchased Dominion Safe & Vault Co. Ltd., Niagara Falls, Ont. A new firm, Mosler-Taylor Sales Ltd., has been formed to operate the new property.

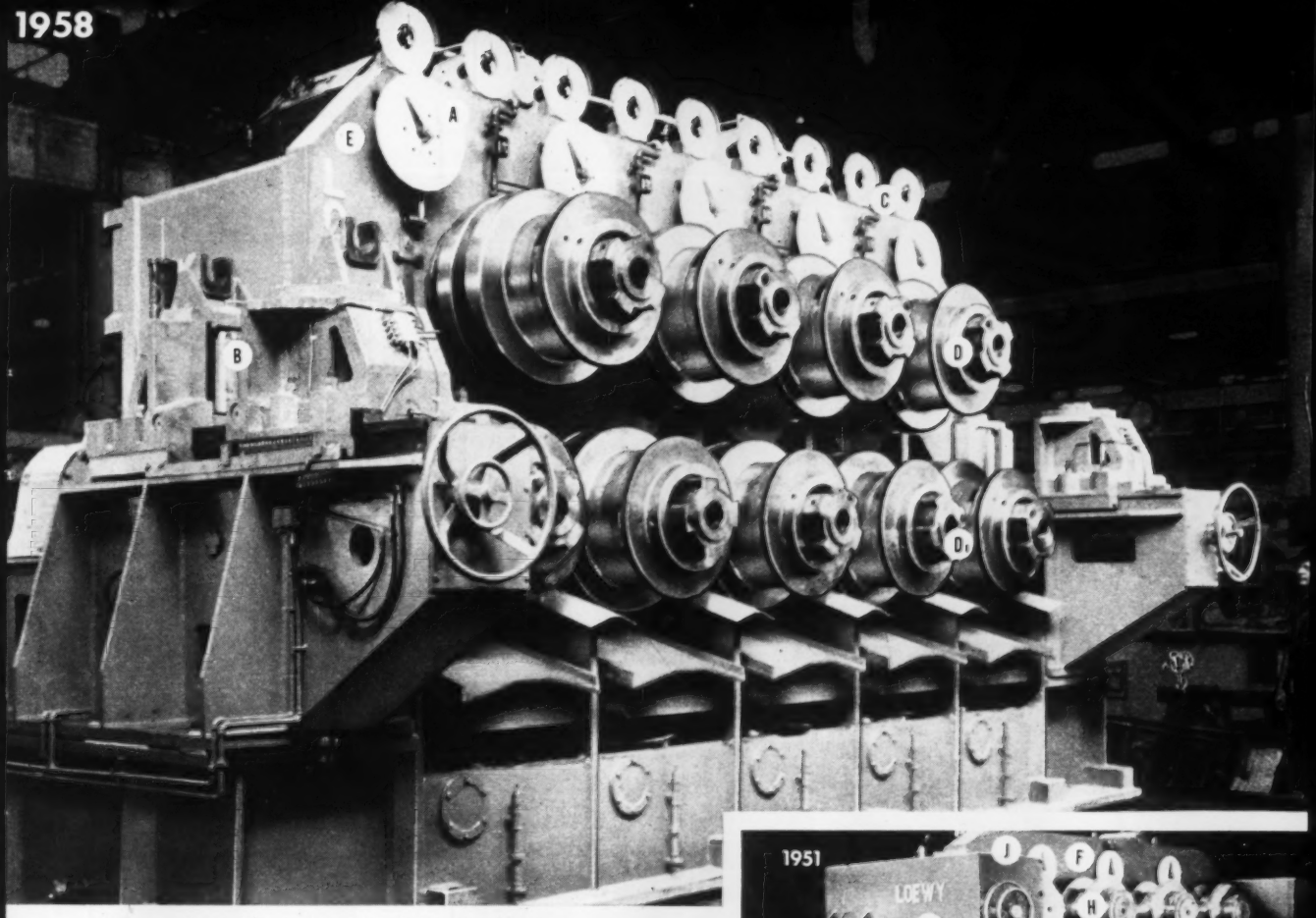
Plans Research Facility

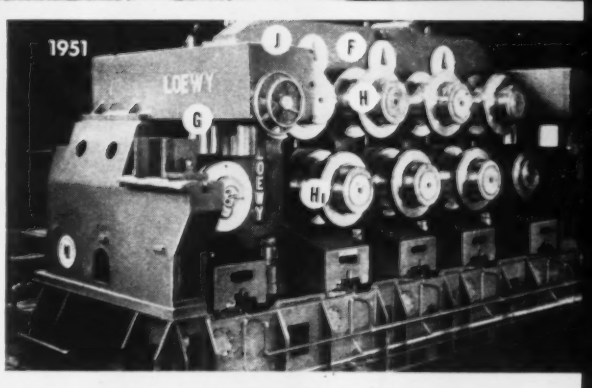
Litton Industries, Beverly Hills, Calif., will build a $1.5 million engineering and research facility at Culver City, Calif. It will be used for advanced research in electronic assemblies.

Inco Expanding Mill

International Nickel Co. Inc., New York, is increasing the cold-drawing production capacity of its Huntington, W. Va., Works by about 50 per cent. A plant addition will house more equipment and facilities for production of seamless nickel alloy tubing, especially for extra-

1958





A. Five indicators for vertical adjustment of horizontal rollers
B. Vertical rollers supported on both ends and arranged on base-mounted sliding frame
C. Nine indicators for lateral adjustment
D, D1. Horizontal rollers bench-assembled on sleeves for quick change of program
E. All-welded steel frame

Also noteworthy: lateral movements are power operated and vertical rolls are driven by separate motor

F. Three indicators for vertical adjustment of lower horizontal rollers
G. Vertical rollers overhung and mounted on overhung bracket
H, H1. Horizontal rollers directly mounted in roller shafts
J. Cast steel frame

NOW !...

Loewy roller-straighteners for structurals and rails feature one-pass straightening at 600 fpm

In 1951 Loewy-Hydropress designed and built America's first roller-straightener with overhung straightening rolls for heavy structurals and rails—the most important development ever made in the design of straightening machines. This one-man-operated Loewy-pioneered straightener beats the slow and cumbersome gag press, which depends entirely on the operator's skill. It outmodes the closed-type straightener, which is not nearly so accessible as the open-type Loewy, does not provide the horizontal adjustment for removing camber, and requires partial dismantling of the machine for every program change.

Now we offer a machine incorporating features that further improve on the original overhung model of 1951 (see photographs above). Among the advantages are greater maximum speed—up to 600 fpm—and decrease of time required for changing rolls. By providing sleeve-mounted rolls, their assembly may be accomplished away from the machine, and thus the change of rolls can today be effected with a minimum delay for different rolling programs. Roll adjustments are now remote-control power operated and provided with selsyn-actuated indicators which show the various adjustments in the operator's booth as well as on the machine. Our machines achieve better than commercial straightness in one pass.

For more information on Loewy roller-straighteners for structural steel or on any other rolling equipment, write Dept. B-5.

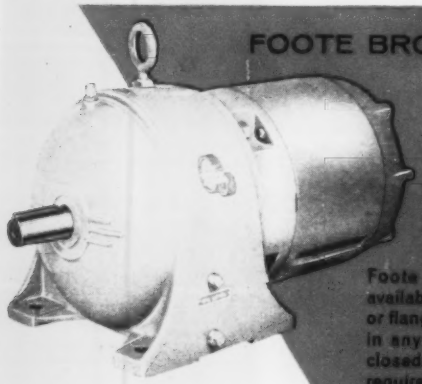
Loewy-Hydropress Division
BALDWIN · LIMA · HAMILTON
111 FIFTH AVENUE, NEW YORK 3, N.Y. Rolling mills • Hydraulic machinery • Industrial engineering

BALDWIN BLH LIMA-HAMILTON

FOOTE BROS. **Motorized Drives**

Duti-Rated LIFETIME GEARING

Gives You More Power Per Dollar



FOOTE BROS.-LOUIS ALLIS

GEARMOTORS

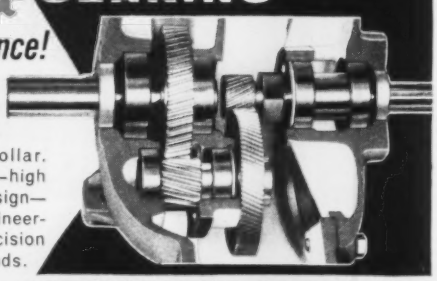
1 to 150 HP... Single, Double, Triple, Quadruple Reductions . . . Output Speeds from 780 to 7.5 RPM

Foote Bros.-Louis Allis Gearmotors are available in over 3500 types and sizes. Foot or flange mountings. Motors can be ordered in any type—open drip-proof, totally enclosed, explosion proof, etc. to meet your requirements.

Duti-Rated GEARING

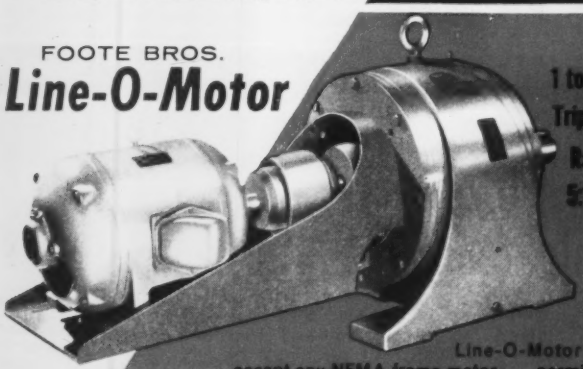
Makes the Difference!

Duti-Rated Gearing is the heart of Foote Bros. Motorized Drives . . . drives that give you more load capacity and wear life per dollar. This is premium quality gearing—high hardness, accurate, balanced design—the product of thousands of engineering and development hours, precision tooling and manufacturing methods.



FOOTE BROS.

Line-O-Motor



1 to 75 HP...Double, Triple Reductions... Ratios: 5:1 thru 238:1

Line-O-Motor Drives accept any NEMA frame motor . . . permit you to use your own motor or specify type to meet plant standardization. Foot or flange mounted.

Write for CATALOG MRA. It has complete details and selection data on Foote Bros. Motorized Drives.

this trademark stands for the finest industrial gearing made

T. M. REG. U. S. PAT. OFF.

FOOTE BROS.

Better Power Transmission Through Better Gears

FOOTE BROS. GEAR AND MACHINE CORPORATION

4583 South Western Boulevard Chicago 9, Illinois

long Monel tubing. New equipment will include a 150,000-lb draw bench, a 300-ft long gas-fired annealing furnace, and four overhead cranes. Provision will be made for high pressure and ultrasonic testing. Estimated cost: $3.5 million.

Dayton Rubber To Build

Dayton Rubber Co., Dayton, Ohio, plans to erect a 175,000 sq ft mechanical rubber goods manufacturing plant at Springfield, Mo

CONSOLIDATIONS

Metal Forming Corp., Elkhart, Ind., merged with **Vanadium-Alloys Steel Co.**, Latrobe, Pa., and will be operated under the same name as a division.

Lindsay Chemical Co., Chicago, merged into **American Potash & Chemical Corp.**, Los Angeles, and will be operated as the Lindsay Chemical Div. Lindsay produces more than 60 chemicals, thorium, yttrium, and rare earths.

Narda Ultrasonics Corp., Mineola, N. Y., acquired **Alcar Instruments Inc.**, Little Ferry, N. J. Alcar specializes in ultrasonic research and development, and is a supplier of custom-built systems and high-powered ultrasonic equipment and special devices to industry and government. Alcar will be operated as a subsidiary under the presidency of Benson Carlin.

A. V. Roe Canada Ltd., Toronto, Ont., bought two companies which will be merged and operated as Canadian Car (Pacific) Ltd., a division of Canadian Car Co., Montreal, Que., a Roe subsidiary. The west coast firms are: **Vivian Diesels & Munitions Ltd.** and **Vivian Engine Works Ltd.**, Vancouver, B. C.

Dayton Steel Foundry Co., Dayton, Ohio, acquired **Sterkel Tandem V-Belt Drive Mfg. Co.**, Denver. The property will be operated as Dayton Tandem V-Belt Drive Co.

Sta-Rite Products Inc., Delavan, Wis., acquired **Perfection Mfg. Corp.**, Belvidere, Ill., producer of dairy equipment and pumps. Sta-

WELDMENT SERVICE

Subcontract this part of your production profitably ... confidently

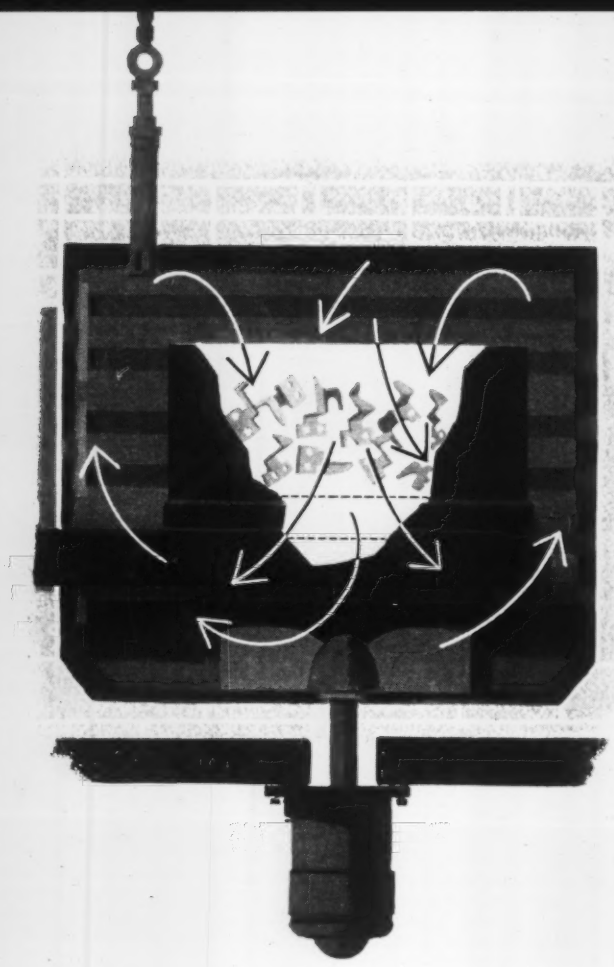
Now you can employ the nationally known facilities, experience and craftsmanship of The Morgan Engineering Company to produce components for *your* products. Whether you require quantities of small precision weldments or parts weighing up to 80 tons, you can subcontract this part of your production profitably . . . confidently.

Facilities include a complete line of positioning and automatic welding equipment . . . a 20 x 18 x 52 foot stress-relieving furnace . . . modern shot blast equipment and a wide range of machine shop facilities.

Inspection of the Morgan plant is welcomed. Write, wire or phone for complete data on facilities . . . or ask a Morgan sales engineer to call.

THE MORGAN ENGINEERING CO. *Alliance, Ohio*

Overhead electric traveling cranes, gantry cranes, open hearth special cranes, plate mills, blooming mills, structural mills, shears, saws and auxiliary equipment.



it's new!

The L&N Tricarb method with controlled atmosphere . . . temperature . . . quench

This precision furnace is the most versatile in the history of heat treating. It can be used interchangeably for controlled case carburizing, carbonitriding, homogeneous carburizing, carbon restoration, or hardening.

The unique combination of Microcarb atmosphere control, Speedomax® temperature control and the controlled quench, makes possible significant quality improvements in production heat treating. New, efficient, L-O voltage radiant tube heaters are rugged, requiring minimum maintenance—are not subject to failures from carbon deposits when the furnace is used for carbonitriding without Microcarb control.

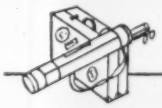
In many instances the Tricarb method has proved a practical solution to lower production costs . . . higher quality . . . more process automation . . . elimination of rejects and spoilage. In others it makes thoroughly practical the handling of many previously impossible or difficult heat treatments on a reproducible, production basis.

Folder T-620(17) explains the Tricarb Method. Write us at 4957 Stenton Ave., Phila. 44, Pa.

When small cams for electrical instruments are carburized in this Tricarb furnace, 6¢ per piece is saved on subsequent buffing operations because work comes from the furnace so clean.

LEEDS NORTHRUP
Instruments Automatic Controls • Furnaces

Rite will operate the property as a subsidiary and will build a 64,000 sq ft pump manufacturing plant at Delavan.



VACATIONS

Waldes Kohinoor Inc., Long Island City, N. Y., will be closed from July 21 to Aug. 1, inclusive. The firm's sales, order, and shipping departments will function on a limited basis during the vacation period. The firm makes retaining rings, grooving tools, and other products.

ASSOCIATIONS

Copper & Brass Research Association, New York, elected these officers: President, J. M. Kennedy, Revere Copper & Brass Inc., New York; senior vice president, D. W. Blend, Wolverine Tube Div., Calumet & Hecla Inc., Detroit. Vice presidents are: Justice Lockwood, American Brass Co., Waterbury, Conn.; Allen R. Roach, Penn Brass & Copper Co., Erie, Pa.; F. R. Slagle, Miller Co., Meriden, Conn.; F. W. Sullivan, United Wire & Supply Corp., Providence, R. I.; J. E. Williams, Western Brass Mills Div., Olin Mathieson Chemical Corp., New Haven, Conn.; G. P. Bakken, Chase Brass & Copper Co. Inc., Waterbury; C. P. Goss, Scovill Mfg. Co., Waterbury. F. L. Riggen Sr., Mueller Brass Co., Port Huron, Mich., was re-elected treasurer; T. E. Veltfort, managing director; and Carl H. Pihl, secretary.

American Tin Trade Association, New York, elected these officers: President, J. J. Jennings, National Lead Co., New York; treasurer, Heinrich Meyer, Ayrton Metal & Ore Corp., New York; and vice president, Elmer E. Stewart.

Metal Roof Deck Technical Institute, Chicago, elected these officers: President, B. W. Blake, Macomber Inc., Canton, Ohio; first vice president, N. P. Travers, Wheeling Corrugating Co., Wheeling, W. Va.; second vice president, S. M. Burke, Granco Steel Products

(*Please turn to Page* 96)

ACCURATE ROLLING

SAVES MACHINING

REDUCES SCRAP LOSS

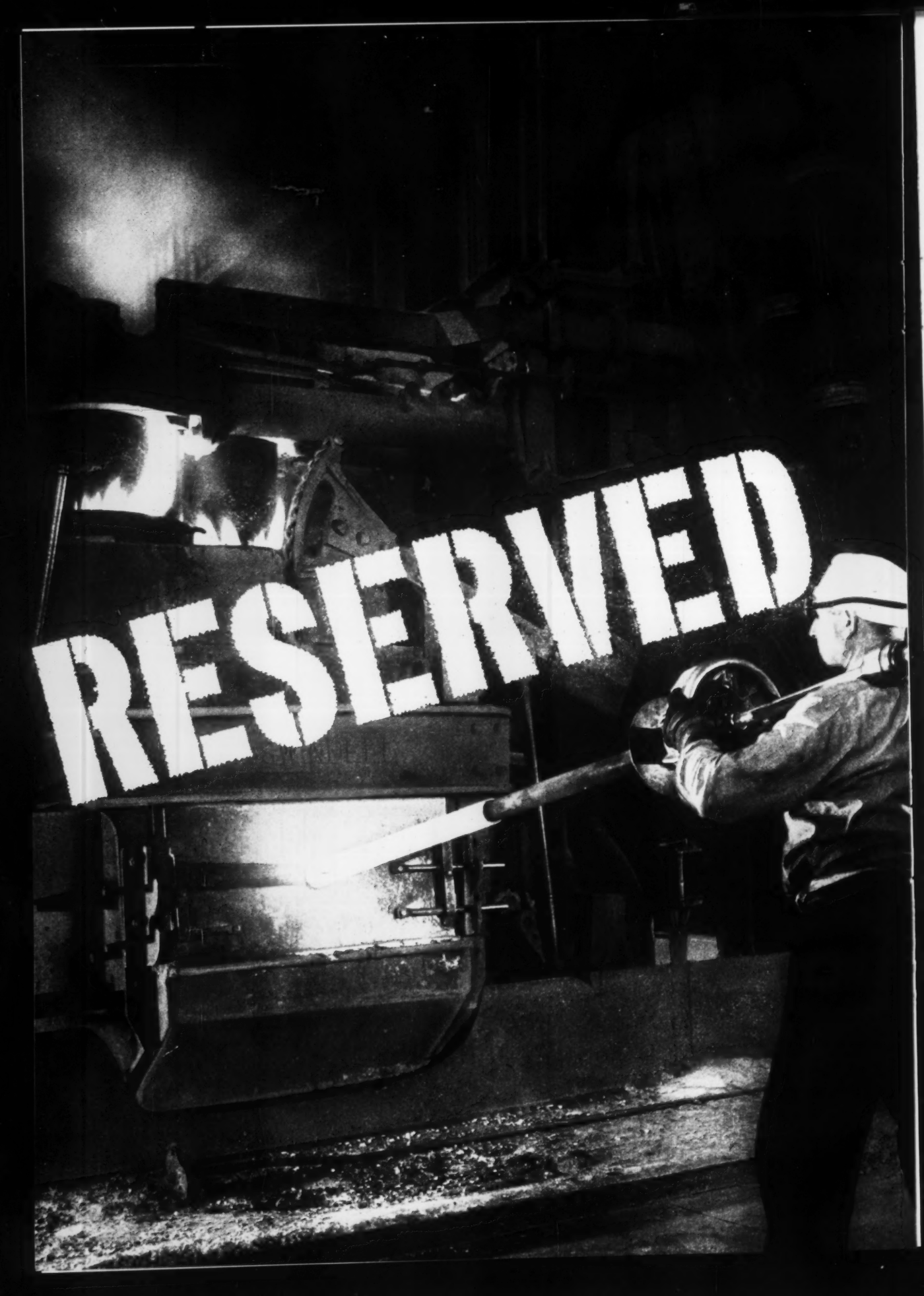
ASSURES HIGH QUALITY

Cost reduction, achieved through the use of Edgewater steel rings, is due to savings in machining time and reduced scrap loss. Edgewater rolled rings are formed to tolerances so close that a minimum of machining is required. Weldless rings are rolled from solid steel blocks by a process which produces a wide variety of cross-section shapes. Diameters are from 5 to 145 inches.

WRITE for bulletin describing Edgewater Rings.

Edgewater Steel Company

P.O. Box 478 • Pittsburgh 30, Penna.


RESERVED

Now, you can reserve steel mill output in advance of actual purchasing. You need never pay for carrying more than a minimum inventory of steel. Yet your supply is assured in peak demand periods!

try this new approach to your steel inventory problems

Here's Carpenter's answer to steel inventory problems you face in both high and low demand periods. Now, because you can reserve mill capacity in advance, there's no longer any need to protect your steel supply in high demand periods by placing excessively large orders.

Even though your needs may rise sharply, Carpenter's new plan assures you all the steel you need. We'll earmark extra-large stocks of semi-finished steel for your emergencies. And if you order steel out of local warehouse stocks, this same plan assures continuous, dependable deliveries.

In low demand periods, your own inventory is never more than the minimum required to match your rate of production. Cash ordinarily tied up in bigger inventories is free at a most advantageous time. And inventory upkeep costs are low.

Increased capacity at Carpenter makes this new plan possible. Through the acquisition of electric furnace steelmaking facilities in New England, Carpenter has virtually doubled previous capacity.

Today, while we're implementing this new service, is the time to go along with us. By acting now, you assure yourself of a steady supply of Carpenter top quality Tool, Stainless and Alloy steels right through the next period of peak demand. Moreover, we can offer this plan to *more* steel users than we've ever served before!

WRITE TODAY FOR "Can We Halt the Plague of Periodic Inventory Buildup?" Recently released, this special report gives you full details on how Carpenter's plan can help you keep inventory costs at a minimum!

The Carpenter Steel Company, Main Office and Mills, Reading, Pa.

Alloy Tube Division, Union, N. J.
Carpenter Steel of New England, Inc., Bridgeport, Conn.
Webb Wire Division, New Brunswick, N. J.

a bright new wire with a brighter tighter finish

SO BRIGHT—Use *Brytite* wherever a shinier, brighter zinc coating is desired for long lasting, more sparkling product appearance. Eliminate polishing and special finishing operations

SO TIGHT—Brytite has remarkable forming qualities. The zinc coating is so tight it will withstand severe deformation of the base metal without flaking, powdering or peeling.

SO CLEAN AND SMOOTH—Satin smooth in looks and feel, BRYTITE immediately raises the quality appeal of your product. You get smoother production, too—the result of precise uniformity and quality controls.

ROUND AND SPECIAL SHAPES—*Brytite* is available in many sizes in round wire, and may on inquiry, be furnished in standard and special shapes—flat, half-round, oval, half-oval, square, rectangular, and many others.

Brytite

A PATENTED GALVANIZING PROCESS ®

TEMPERS AND ANALYSES—Specify BRYTITE in various tempers and analyses in the low carbon and medium low carbon steels.

FINISHES—Satin Finish, Unwiped (where a heavy weight of zinc coating is required) and Redrawn, in certain sizes.

no polishing...no buffing...no finishing...

withstands difficult forming operations

CONTINENTAL STEEL

CORPORATION · KOKOMO, INDIANA

PRODUCERS OF Manufacturer's Wire in many sizes, tempers and finishes, including Galvanized, KOKOTE, BRYTITE, Flame-Sealed, Coppered, Tinned, Annealed, Liquor Finished, Bright, and special shaped wire. Also Welded Wire Reinforcing Fabric, Nails, Continental Chain Link Fence and other products.

(*Concluded from Page 93*)

Co., St. Louis; permanent secretary and managing director, J. T. W. Babcock.

T. J. Hull has assumed his duties as executive secretary, **National Association of Corrosion Engineers,** Houston. R. W. Huff Jr. is now assistant executive secretary.

National Wholesale Hardware Association, Philadelphia, named Thomas A. Fernley Jr., managing director to succeed George A. Fernley, resigned. R. Bruce Wall was named secretary.

Douglas Hewitt of St. Paul has been appointed executive secretary of the **Farm Equipment Institute,** Chicago.

NEW ADDRESSES

Lithium Corp. of America Inc., Minneapolis, moved its product research and development department into new and larger quarters at its chemical plant in that city.

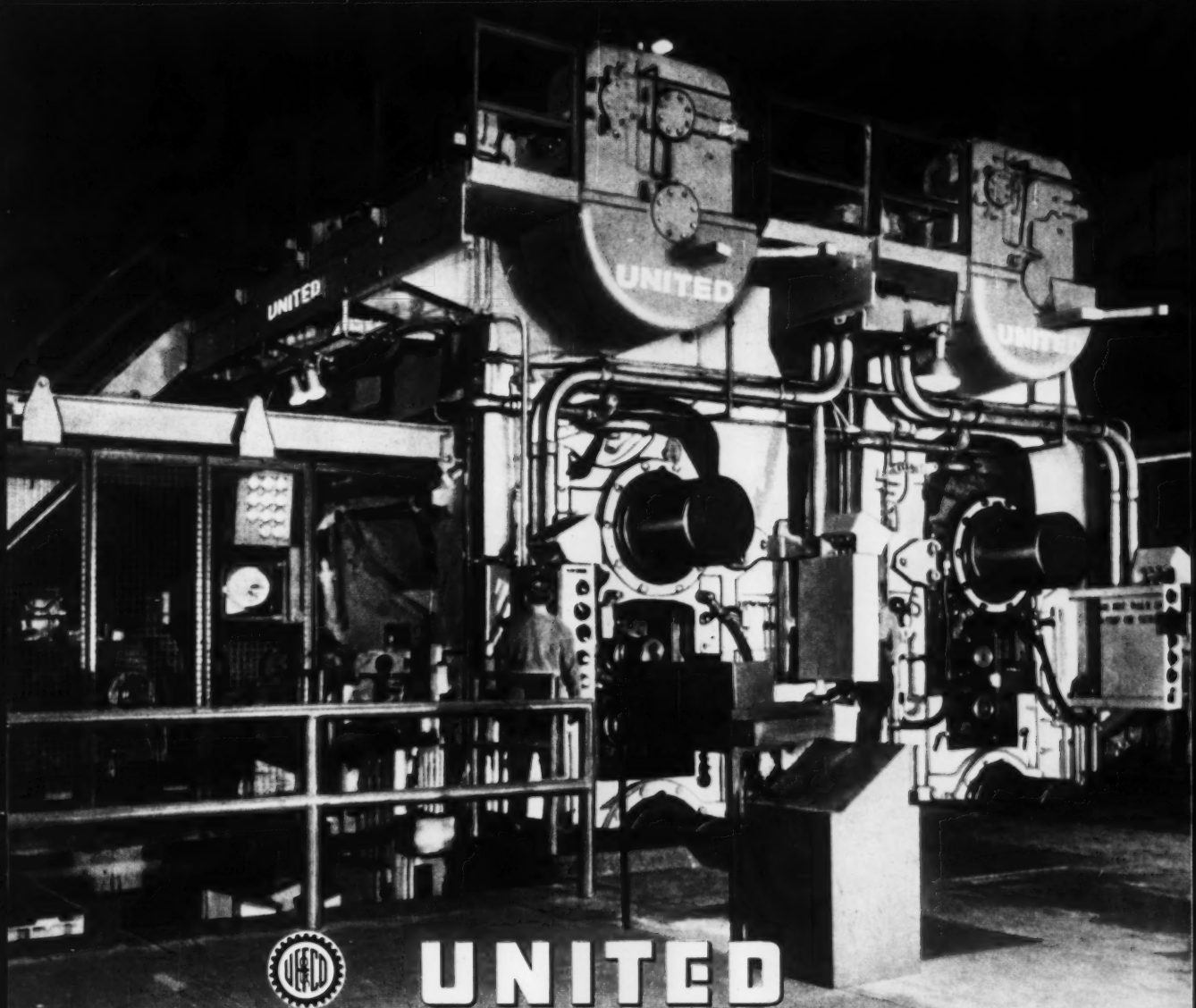
ACF Industries Inc. moved its executive offices to 750 Third Ave., New York 17, N. Y. Offices of its Advanced Products, American Car & Foundry, and Shippers' Car Line divisions also are at the new address.

Supreme Products Corp., Chicago, has moved into a new factory and office building adjoining its old plant at 2222 S. Calumet Ave., Chicago 16, Ill. It provides an additional 43,000 sq ft of working space. Supreme, a maker of drill chucks, power screw drivers, and other power tool attachments, is a subsidiary of A-S-R Products Corp.

Ling Electronics Inc. moved into its new offices and manufacturing plant at Culver City, Calif. The plant covers 38,400 sq ft of floor space and cost more than $400,000. The firm makes electronically driven systems for random, complex, and sine wave vibration testing; sonar equipment; low frequency transmitters; ultrasonic generators; amplifiers; variable frequency power supplies; and numerous other electronic instruments.

UNITED®

4-HIGH 2-STAND TANDEM TEMPER PASS MILL



UNITED

ENGINEERING AND FOUNDRY COMPANY

PITTSBURGH, PENNSYLVANIA

Plants at Pittsburgh, Vandergrift, Youngstown, Canton, Wilmington

SUBSIDIARIES: Adamson United Company, Akron, Ohio
Stedman Foundry and Machine Co., Inc., Aurora, Indiana

Designer and Builders of Ferrous and Nonferrous Rolling Mills, Mill Rolls, Auxiliary Mill and Processing Equipment, Presses and other heavy machinery. Manufacturers of Iron, Nodular Iron and Steel Castings and Weldments.

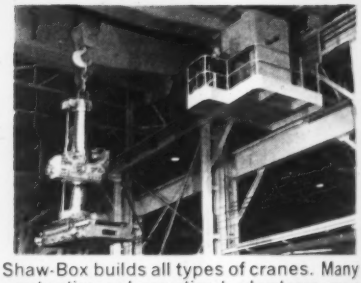
Crane control so exact you can polish your car

Polishing a $5,000 Mercedes-Benz with a cloth on a crane hook takes perfect control. Foolish idea? Not really. Your products and equipment are worth far more than a quality car. Whatever you lift, total control is better with a "Shaw-Box" crane.

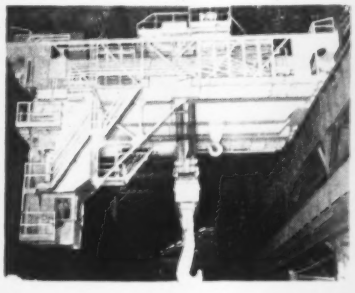
Exact control of all crane operations is engineered into every "Shaw-Box" crane. For instance, bridge end trucks have enclosed gearing to keep grease off the runway, to prevent whipping and skewing. Wheel traction is uniform, starts and stops fully controlled.

Shaw-Box builds cranes to your requirements, to AISE specs, and standard models; to lift 1 ton or 500; for stand-by, intermittent or continuous duty. Every one with absolute control of travel, traverse, lifting and lowering.

Ask one of our engineers to call for a discussion of your crane needs and how Shaw-Box can satisfy them on every count.



Shaw-Box builds all types of cranes. Many construction and operational advantages now accepted as standard were introduced by Shaw-Box.



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MANNING MAXWELL & MOORE INC. M&M TRADE MARK

"Shaw-Box"® CRANES

MANNING, MAXWELL & MOORE, INC.

SHAW-BOX CRANE & HOIST DIVISION

384 W. Broadway • Muskegon, Michigan

Builders of "SHAW-BOX" and LOAD LIFTER' Cranes, 'BUDGIT' and 'LOAD LIFTER' Hoists and other lifting specialties. Other Divisions produce 'ASHCROFT' Gauges 'HANCOCK' Valves, 'CONSOLIDATED' Safety and Relief Valves, and 'AMERICAN' and 'AMERICAN-MICROSEN' Industrial Instruments.

In Canada: ***Manning, Maxwell & Moore of Canada, Ltd., Galt, Ontario***

STEEL
May 26, 1958

Technical Outlook

NEW ALUMINUM CASTING ALLOY— Visitors at last week's foundry show in Cleveland got a look at Alcoa's new aluminum magnesium alloy, X250-T4. It's said to be an improvement over the 220-T4, which it replaces. Advantages: Good strength and ductility; excellent resistance to industrial and marine atmospheres; high resistance to stress corrosion; and it retains ductility during natural aging.

5-MINUTE OXYGEN ANALYSIS—The oxygen content of a metal sample can be determined in 5 minutes with simplified apparatus designed by Laboratory Equipment Corp., St. Joseph, Mo. It is also adaptable to carbon, sulfur, hydrogen, moisture, and ash (in coal) determinations. The instrument is sensitive to 0.0002 per cent oxygen. The company also makes a hot metal sampler which prevents air contact with the specimen.

TOWARD BETTER PLATING—Add a little ammonium chloride to the hydrochloric solution you're using to remove metal oxides before plating. It improves the resistance of metals to posttreatment oxidation, claims a British source. For best results, keep the bath temperature above 125° F.

CHEAPER PLATINUM PLATE— A process which produces a pore-free platinum electroplate without removing the part from the bath for burnishing is said to have distinct cost advantages over previous techniques. The plated surface is fine grained and gray in color. It's useful for high temperature corrosion resistance. Sel-Rex Corp., Nutley, N. J., developed the process, called Platinex III/LS.

CONTINUOUS STRIP WITH VACUUM— You'll soon be able to get stainless strip heat treated or annealed continuously in a novel vacuum furnace designed by engineers at Wallingford Steel Co., Wallingford, Conn. Quality should be higher since the method eliminates the edge and handling effects of batch type processing. The furnace (now under construction) will be able to handle stainless, titanium, or Hastelloy strips up to about 27 in. wide.

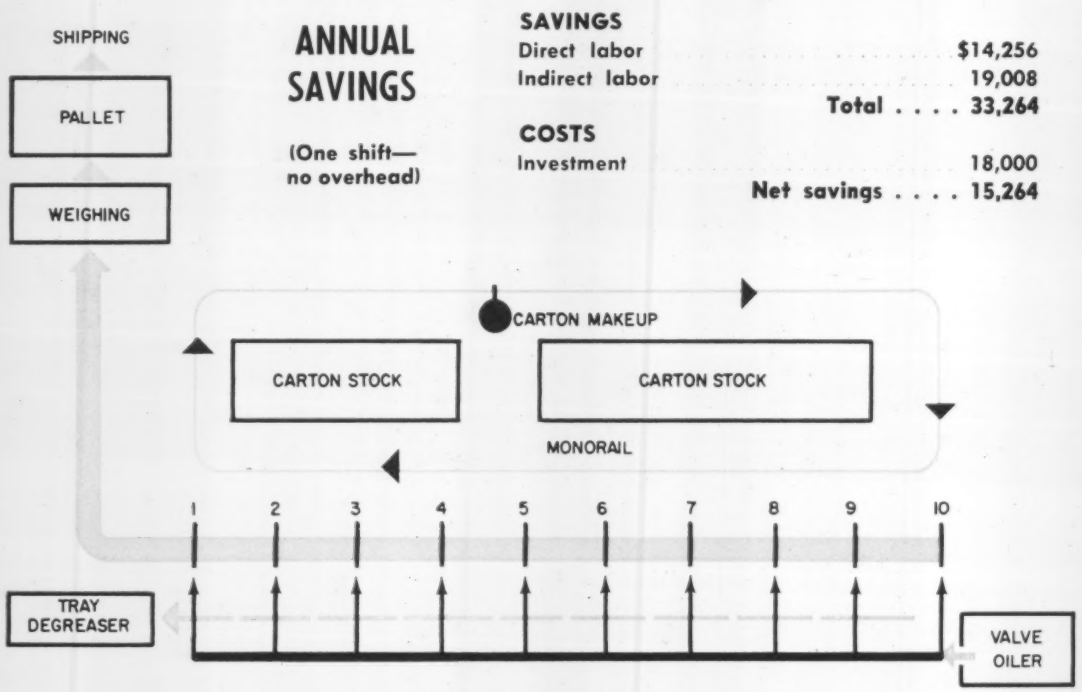
TWO MICROINCHES RMS—High alloy steel bearings get that kind of a finish in one standard barrel finishing machine containing Cor-A-Brite, says Roto-Finish Co., Kalamazoo, Mich. Tests show that the better the steel, the better the finish. It takes about 10 hours to complete a 350-lb load.

DUCTILE MOLYBDENUM—It has outstanding strength properties at high temperatures, say its inventors, H. Gordon Poole of the Colorado School of Mines, and J. S. Nachtman, consulting engineer. Their process for reducing molybdenum sulfide with tin produces a high purity material which can be rolled, extruded, or formed by powder metallurgy techniques.

LITHIUM UPS HEAT RESISTANCE—The Air Research & Testing Committee, top level material group for the Aircraft Industries Association, is studying an aluminum-lithium alloy (Alcoa X2020) that is said to stay strong at around 400° F. It is lighter than conventional alloys, and its high modulus of elasticity adds to structural stiffness in 1600-mph aircraft.

KILN BENEFICIATION—Allis-Chalmers' grate-kiln process for beneficiating iron ore concentrates has shown enough promise in the laboratory to prompt the company to invest in a $250,000 pilot plant. It will include a 13-ft long traveling grate furnace and an 18-ft rotary kiln.

PROFILE ROLLING—Strip metal, rolled to close tolerance shapes more typical of extrusions, has the potential for a bigger market. Makers of jet engines, torque converters, and steam turbines discovered its application to blade contours after cutlery makers had used it for years. Alloy steels, Haynes alloys, titanium, and zirconium can be intrinsically rolled by companies, such as the General Plate Div. of Metals & Controls Corp., Attleboro, Mass., which specialize in the technique.



Finished valves start into packaging line in trays at the right. After passing through oiler, the operator pushes them to one of ten feeder lines each of which holds about an hour's work. Cartons are made up in separate area and move by conveyor to packers. After loading, belt conveyor carries cartons to weighing, palletizing, and shipping. Empty trays are returned via separate slat conveyor to the degreaser (left)

New Layout Ups Output 10%

This firm's investment of $18,000 paid for itself in about six months. In addition, it gained quality, safety, and better housekeeping. Supervisors have fewer headaches

THE VALVE Div. at Thompson Products Inc., Cleveland, had a problem: Its packing department was too small — workmen got in each other's way. A warehouse was rented to store packing materials. The indirect-direct labor ratio was too high.

Solution: A new layout in a larger area that upped packaging output 10 per cent and cut indirect labor by 30 per cent.

Features — Two improvements account for most of the savings: 1. Packed cartons continue in a straight line from packing to weighing to shipping. (That replaces the old method of returning them to the starting point by belt conveyor.) 2. Cartons are stapled and made up a short distance away and carried to the packers on an overhead conveyor.

Those changes give workmen more room and conform to a cardinal rule of plant layout: Straight line movement. Other benefits: Wider aisles, which simplify housekeeping and permit the use of powered lift trucks, and improved safety. Cartons don't have to be lifted from the time they're packed until ready for shipment.

Operation — Trays of finished valves are stored in racks at the start of the packing line. Trays pass through an oiler, then roll along a conveyor to one of ten packing lines. Each holds about an hour's work.

The packers take the oiled valves from the trays, wrap them, and pack them in cartons.

Empty trays roll down to a slat conveyor which takes them to the degreaser. Full cartons slide to a belt conveyor which ends up in the shipping department.

Principles—Plant and process layouts offer great opportunity for savings. G. H. Meyfarth Jr., vice president, May-Fran Engineering Inc., Cleveland, estimates that 70 to 80 per cent of industrial activity is material handling. "A large part of the savings at the new Twinsburg, Ohio, plant of the Chrysler Corp. came from an efficient layout." An integrated scrap handling layout alone saved 30 per cent, he claims. Scrap is cut and baled to get a higher scrap price. The system is so good that large pieces like window blanks from doors are no longer saved—it's cheaper to scrap them.

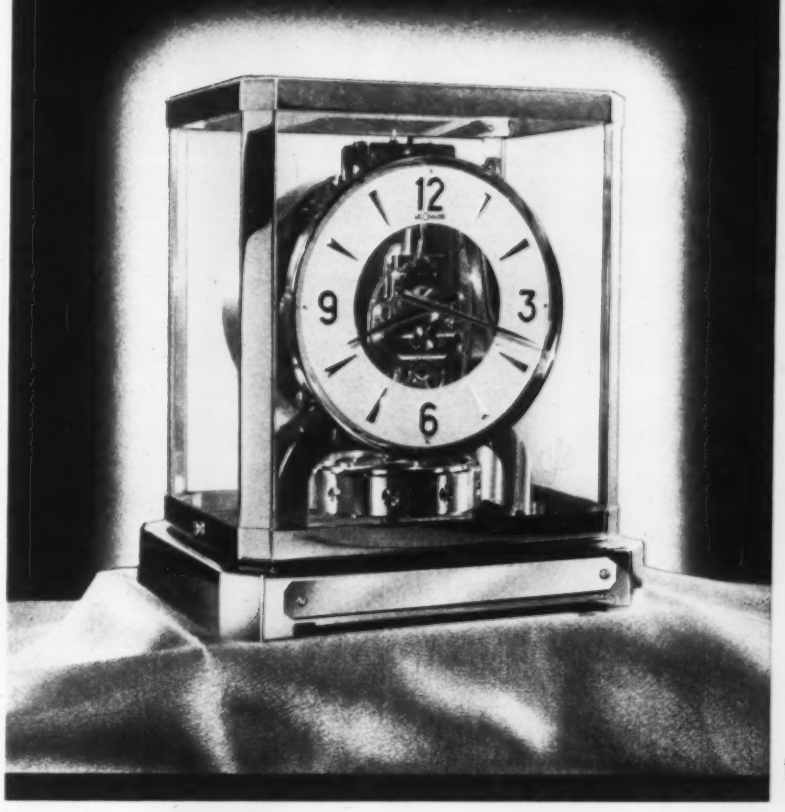
Henry Spitzhoff of Robert Heller & Associates, Cleveland, is upset when industrialists fail to plan farther than one or two years. Too often, their layouts have to be done over again. His advice: Plan for at least five years. Even if your crystal ball is a little cloudy, look at it, he says. Other suggestions: Don't spend too much time on minor considerations. Consider how it might be done better. Integrate process design with product design.

Responsibility—Such changes are the specialty of industrial and process engineers. They must analyze operations, transportation, inspection, delays, and storage. The process usually begins with a flow chart, then the checking of jigs and fixtures, and tool arrangements. They try to couple as many machines as possible.

A good plant layout keeps costs low, steadies regular production, improves supervision and quality, and increases the number of people a supervisor can handle. Proper layout also cuts capital investment.

One engineer calls models indispensable. "Block or line layouts are useful, but they can't give you as many answers as scale models."

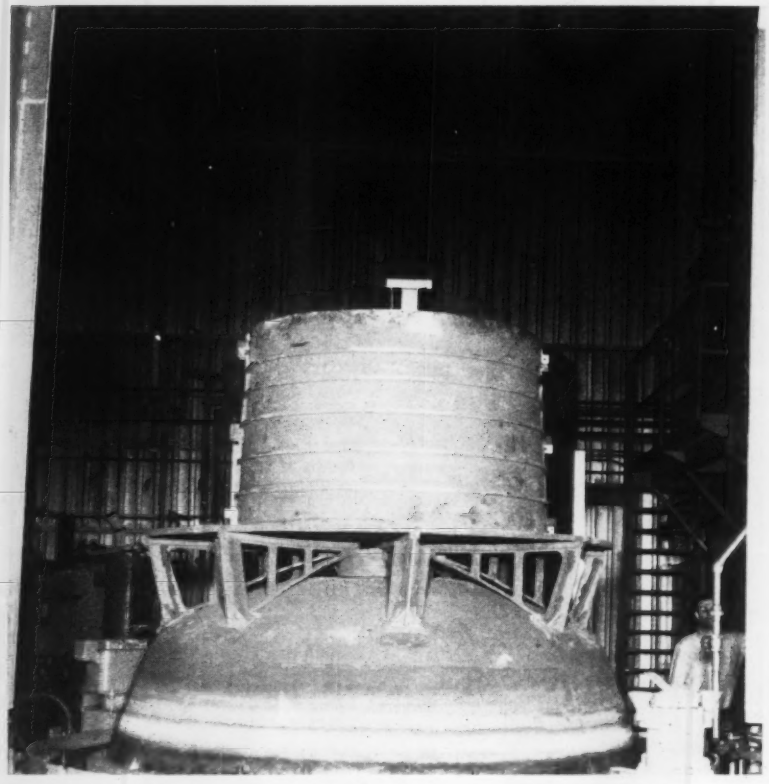
STEEL's Production Efficiency Awards in COST CRISIS COMPETITION

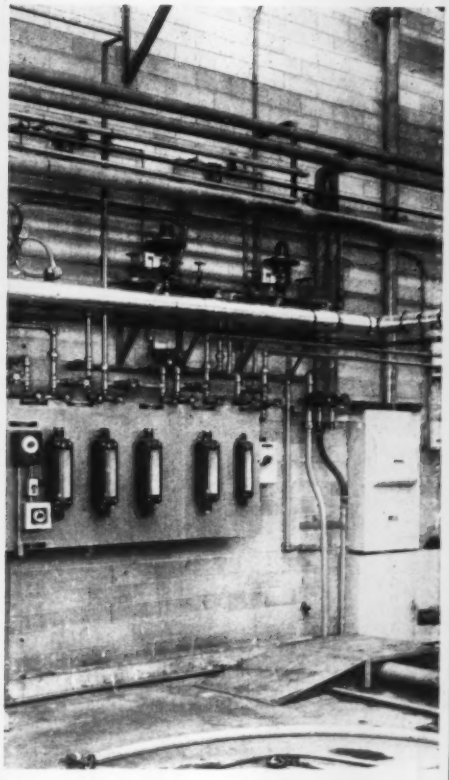


This is Atmos—the perpetual motion clock which derives its energy from changes in atmospheric temperature.

Ten clocks suitably inscribed, will be awarded to winners in STEEL's Cost Crisis Competition, two in each of five employment groups.

The accompanying article is an example of what the editors are looking for in their search for companies that have made important cost savings through more efficient use of capital equipment. Does your company qualify? If so, enter the competition—no later than June 15, 1958. Write to the Cost Crisis Editor, STEEL, Penton Bldg., Cleveland 13, Ohio, for your awards kit.





Furnace base, hearth, and Chromolloy cylinder load in place. This cylinder is made in two halves

Heating Technique Minimizes Distortion

Process for hardening large gas turbine parts of Chromolloy steel includes heating in an atmosphere furnace, quenching in liquid carbon dioxide, and proper fixturing

HERE are typical requirements for new designs of large Chromalloy parts such as jet engine components: Quench a thin walled cylinder 4 ft in diameter by 4 ft high from 1725 to 1000° F within 3 minutes. No distortion or significant change in carbon content can be tolerated.

Chromalloy is a chrome-molybdenum-vanadium steel used for medium-high temperature applications in aircraft gas turbines. It is subject to severe decarburization and must be heated in atmosphere neutral to its carbon content.

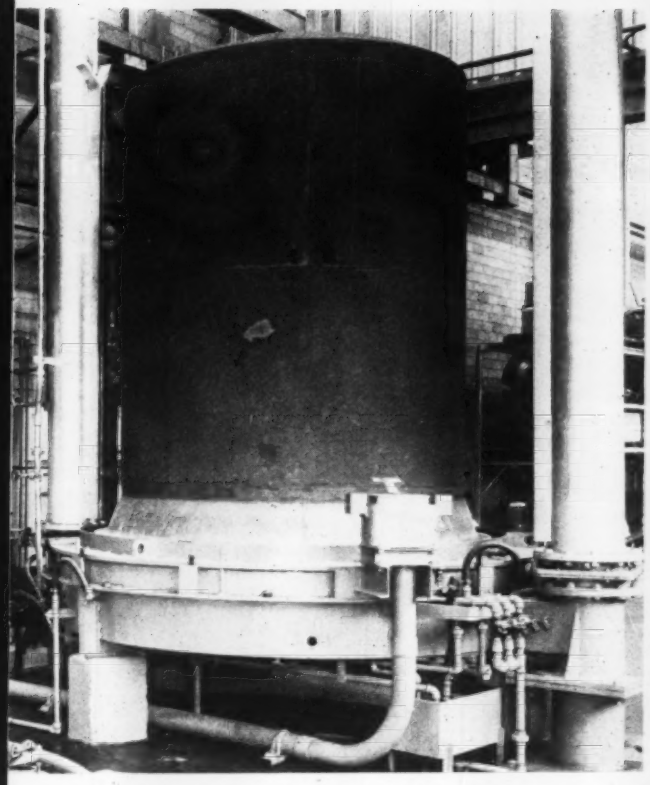
Heat Treatment—For hardening, the part is heated in a protective atmosphere to 1725° F and held for 1 hour and quenched as described above.

Cooling is continued down to 300° F, and the part is allowed to equalize in the furnace. Then it is tempered by heating to 1200° F and holding at that level a minimum of 2 hours. After that, it is cooled to room temperature and removed from the furnace.

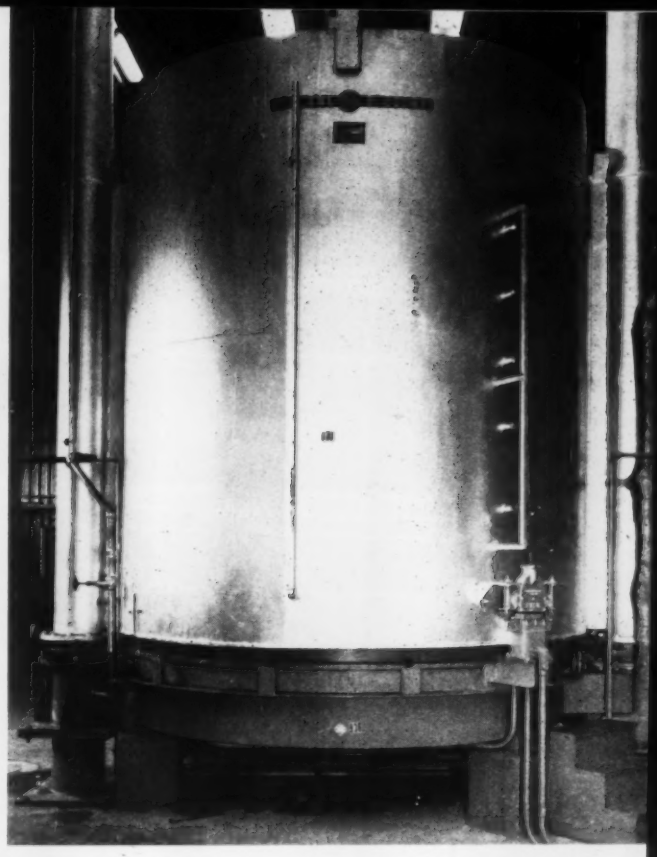
Furnaces—Small parts are hardened and tempered in conventional roller hearth furnaces. Rapid quenching is done in a forced circulation atmosphere chamber which is part of the furnace. The chamber is water jacketed and has a fan to circulate the protective atmosphere and promote fast cooling.

In balancing production requirements against the size of heat treating equipment, it has been practical to treat parts up to a maximum of 3 ft in diameter and 2½ ft high with conventional roller hearth furnace equipment.

Large Parts — A problem arose when designers called for cylindrical parts up to 4 ft in diameter and 4 ft high. The cylinders are fabricated from material ⅛ to ¼ in.



Furnace base and retort ready to receive heating bell



Bell has been placed over retort and is ready for heating

By R. E. WRIGHT
and
C. SCHULENBERG
General Electric Co.

thick and have weldments on cylinder walls in several locations.

Flanges are attached at each end of the cylinder. Distortion and warpage must be kept at a minimum in the hardening and tempering treatments and the drastic quench.

The problem broke down into two parts. The first: What quenching means could best be used to reduce part temperature from 1725 to 1000° F within 3 minutes but avoid excessive distortion. The second: What type equipment would best handle this part for the heat treating cycle.

Quench—Liquid carbon dioxide was chosen as a quenching material. It is stored under pressure in a 6-ton tank and piped directly to the furnace. An air-actuated valve with a timing device permits sufficient liquid carbon dioxide to vaporize as it enters the furnace.

The decarburizing effect of carbon dioxide on the surface of the heat treated parts is not significant.

Furnace—A bell type furnace was selected. It consists of a stationary base on which the workload is placed, a retort which is placed over the load and rests on the base, and the furnace which is like a cylinder with an open bottom.

The furnace bell and retort are lifted with a hoist and placed over the workload. A standby base near the working base is used to hold the hot furnace bell when it is removed for the quenching portion of the cycle. The maximum operating temperature of the furnace is 2000° F.

The output gas is about 20 per cent carbon monoxide, 38 per cent hydrogen, 0.5 per cent methane, and 41.5 per cent nitrogen. The dew point of that analysis can be as low as − 10° F.

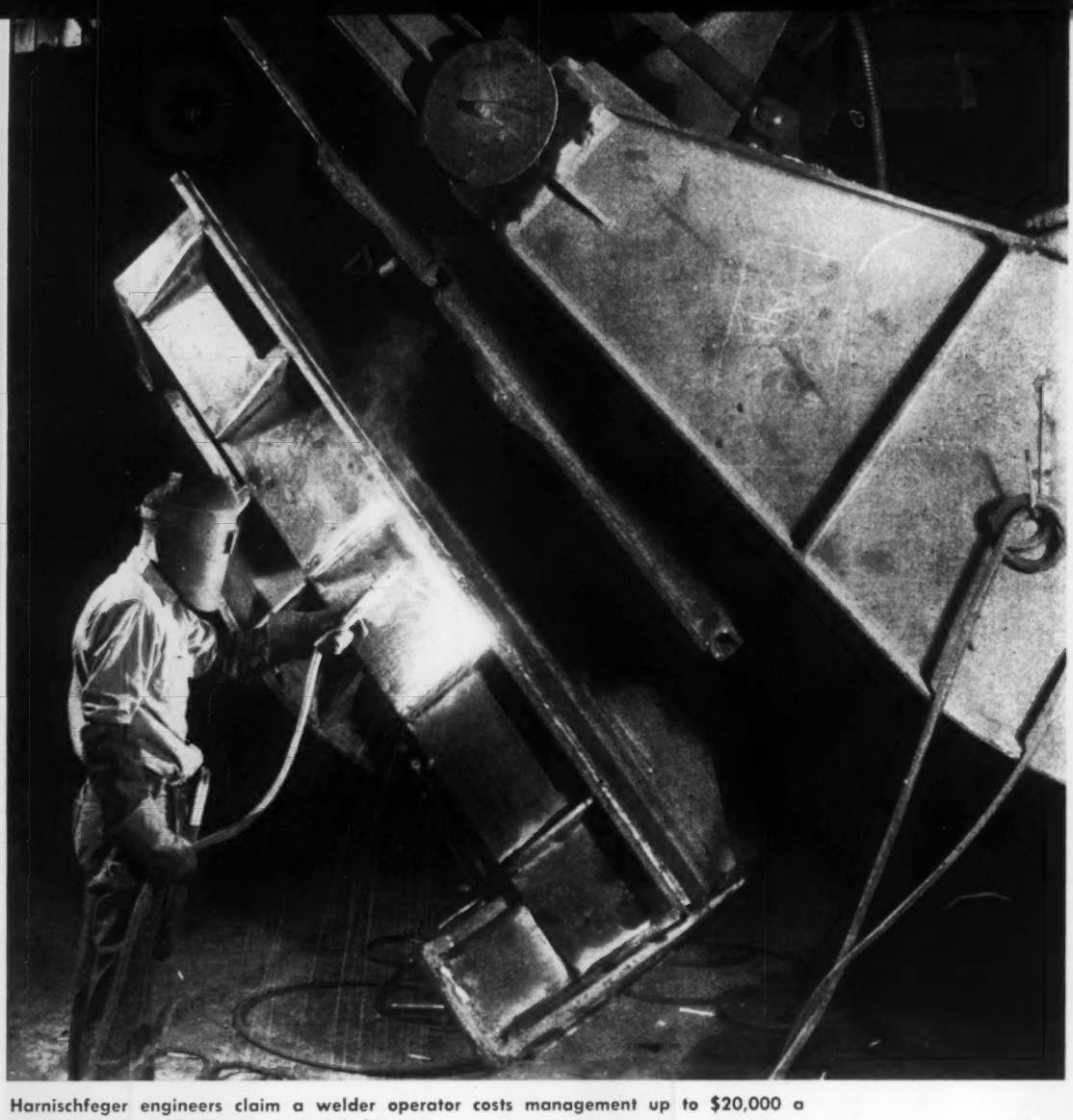
Fixturing—With the combination of the bell type furnace, endothermic gas atmosphere, and carbon dioxide quench, it is possible to hold large parts within close tolerances with the proper fixtures.

Fixtures are designed so they carry the weight of the part. To eliminate any retarding action in quenching caused by the mass of the fixture, no section of the fixture is of greater cross section than the part next to it.

The use of different fixtures and nozzles in the quench assures equal distribution of the quenching medium and minimizes distortion.

The success of the carbon dioxide quench out of an endothermic atmosphere is due to the speed of the quench and the hydrogen content of the atmosphere gas. The quench and tempering treatment make it possible to through-harden a piece 1 in. thick.

• *An extra copy of this article is available until supply is exhausted. Write Editorial Service,* STEEL, *Penton Bldg., Cleveland 13, Ohio.*



Harnischfeger engineers claim a welder operator costs management up to $20,000 a year. A positioner like this one can triple his output

These Devices Turn 'Tilts'

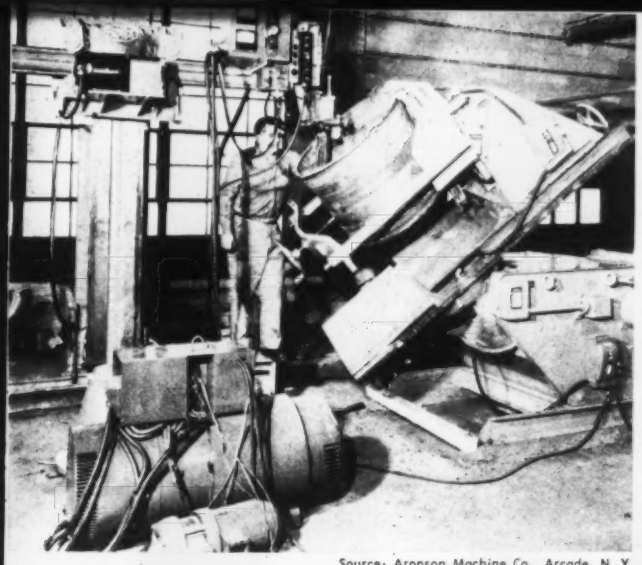
Positioners cut welding costs by placing joints at the right angle for fastest welding. Coupled with manipulators, you can get greater mileage from automatic equipment

EIGHTY-SIX cents of the welding dollar goes for overhead and labor. It's the area of greatest opportunity for savings.

Manipulators and positioners attack such costs by greatly increasing the time an operator spends welding. Positioners alone increase production output two or three times and improve the quality of a weld.

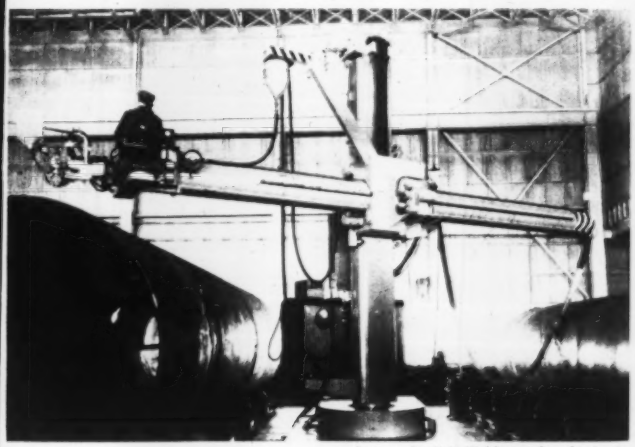
Significance — Engineers agree that the fastest welding position is slightly downhill. Simply tilting a joint 10 per cent from the horizontal permits an operator to lay a bead faster than one done in the flat position. That's where positioners come in.

They are always used whenever it takes more than the welder to move a weldment, says Charles T. Aronson, president, Aronson Ma-



Source: Aronson Machine Co., Arcade, N. Y.

This setup combines a manipulator (left), and a tailstock on a positioner (right). Tailstock turns cylinder end for end; positioner rotates it for weld; manipulator moves welding head out of way

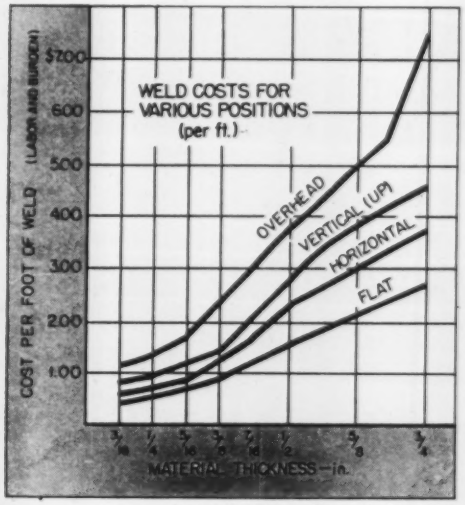


Source: Panjiris Weldment Co., St. Louis.

Track-mounted manipulator speeds production by welding alternate tanks. While one is being replaced, operator moves to the other. This setup holds both controls and power supply

Seven Advantages of Positioners

- Permits downhand welding.
- Increases production up to 50 per cent.
- Helps operators produce more uniform, stronger welds.
- Cuts labor costs up to 50 per cent.
- Cuts welding rod wastes 5 to 7 per cent.
- Cuts crane use and handling accidents.
- Permits increased use of automatic welders and manipulators.



Source: Worthington Corp., Harrison, N. J.

For maximum savings, get the weld in the best position you can. That's the foundation for savings from positioners. Chart compares welding costs of several standard positions

into Dollars

chine Co., Arcade, N. Y.

Engineers at Harnischfeger Corp., Milwaukee, believe the only barrier to profitable use is whether you can get a weldment on a positioner. Their experience shows that some 80 per cent of their jobs can be positioned.

Case Histories—Benthall Machine Co., Suffolk, Va., makes farming machines. It had a space problem. Production schedules were up, but there was no room and too little justification to expand.

The bottleneck was fabricating and welding heavy angle iron frames. It solved that situation with a positioner and tailstock. Cost: About $1500. Results: Production increased 300 per cent; costs fell 50 per cent.

Allis-Chalmers Mfg. Co. Milwaukee, installed a 6000-lb positioner with a 3000-lb drive mounted on the faceplate. Production of crawler frames for tractors and motor graders was increased 100 per cent. Daily labor and burden savings came to $87.50. Says Allis-Chalmers: "Positioners and downhand welding improved quality, proving to us that such an investment is more than worthwhile."

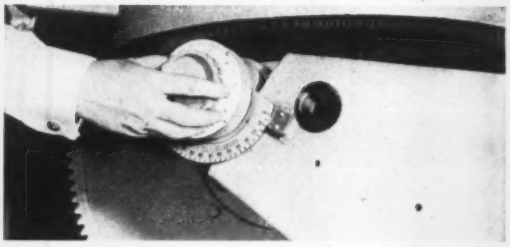
Philosophy — Anthony K. Panjiris, president, Panjiris Weldment Co., St. Louis, has popularized the slogan, "Position all three — the man, the work, and the automatic head." Here is his formula. Analyze: 1. The operator. 2. The product. 3. Welding equipment. 4. Positioners. 5. Work deployment (material handling). 6. The welding method to be used.

Families — Positioners come in four categories: Hand, hand geared, powered, and miscellaneous types which include turning rolls and rotating floor tables.

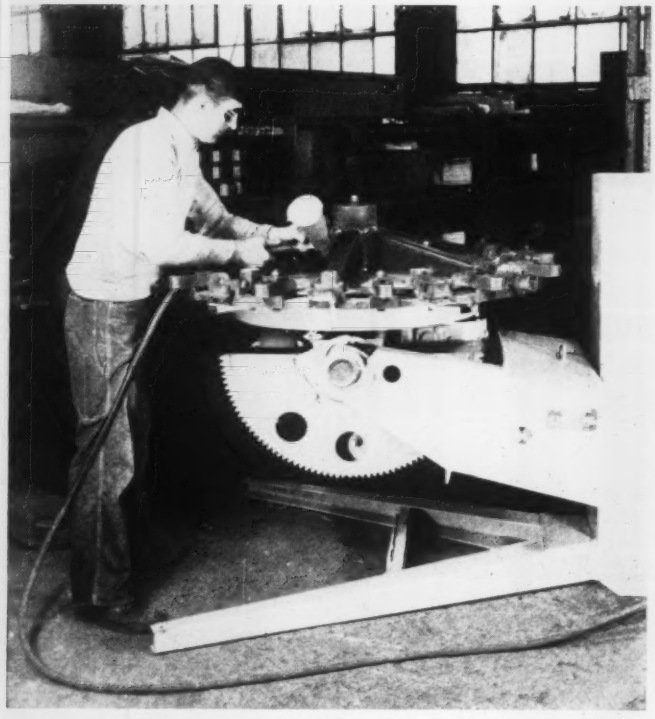
Aronson has a hand controlled positioner that capitalizes on a

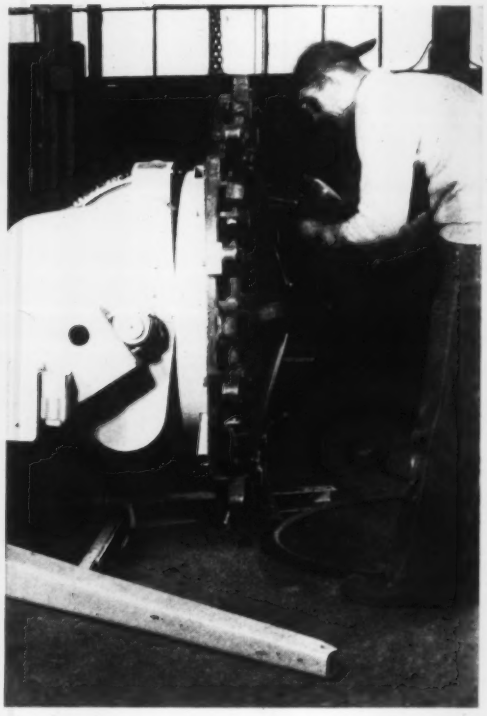
Doubles as Fixture

Spider assembly like the one below is a natural for a positioner. Operator swivels the part for hub welds after finishing spokes (below, right). Dial (right) greatly speeds adjustments



Source: Worthington Corp.





weldment's center of gravity to provide balance. Since the tableshaft has a roller bearing, an operator needs only to push a little to move the weldment. It is limited to assemblies of reasonable size and weight.

Other hand positioners use a worm gear and gear trains for such adjustments.

Powered positioners are electrically driven, and controlled through hand or foot operated pushbuttons. (There is a wide variation of opinion about the safety features of each type of control.)

Sizes—The smallest ones fit easily on a bench and cost about $200. The largest ones hold weldments weighing 500,000 lb. Cost: $58,000. Most makers agree that there's no particular limit on size. Larger ones are already on the drawing board or in the shop.

Manipulators—Except for special types, they consist of base, pedestal, and a boom or ram, which holds the automatic welding head.

There are two kinds of bases: Platform and track.

A manipulator is an extension of the positioning idea: The operator is replaced by an automatic machine.

Combining the advantages of a positioner and a manipulator redoubles savings. They reduce the need for comparatively expensive special machines and greatly extend the usefulness of the automatic welding head.

What's Ahead—One of the latest developments is an automatic directional control for a manipulator. Made by Lewis Welding & Engineering, Bedford, Ohio, it seeks or hunts the center of a seam and eliminates the need for exceptionally accurate fitup or elaborate fixturing. It permits joining of curved, contoured, or irregularly shaped seams with an automatic welder.

Much automatic welding is still limited to straight seams. But experts predict that the day is not far off when tape or punched card controls linked with directional control will extend the automatic's range to cover many more hand welding fabrications.

Last year, positioner and manipulator makers chalked up a record $90 million in sales. The experts are predicting that the record won't last long.

• *An extra copy of this article is available until supply is exhausted. Write Editorial Service,* STEEL, *Penton Bldg., Cleveland 13, Ohio.*

DoALL Exclusive

LOOK AT THIS New Cutting Edge Protection

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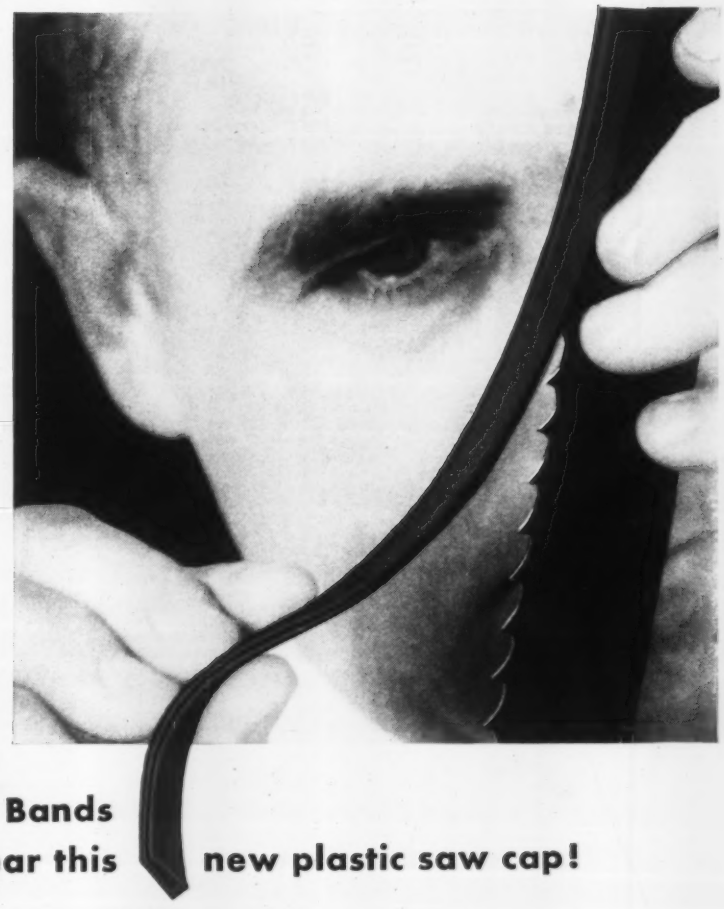

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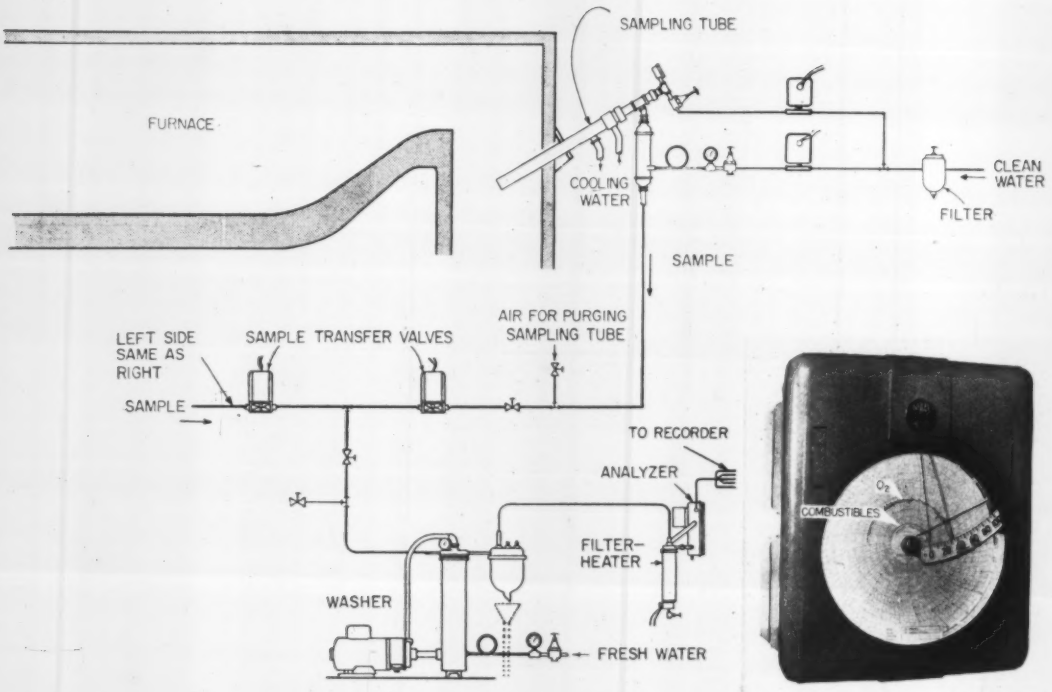
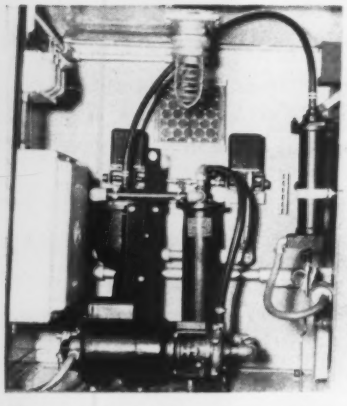


Bailey Meter Co. flue gas analysis system installed on open hearths at Standard Steel Works Div. of Baldwin-Lima-Hamilton Corp. gives visual check for operators who make fuel and burner adjustments manually. The system can easily be adapted to fully automatic combustion control. In the tinted area are the elements of the system contained in the cabinet shown below

Analyze for Combustibles, Too



Most of combustion analysis equipment for a typical Bailey Meter system is housed in a refrigerator-size cabinet. The recorder can be mounted in the cabinet or remotely

On the theory that oxygen analysis gives only half the picture of firing efficiency, an eastern steel producer is checking on unburned fuel as well

CONVERSION of five acid open hearths from oil to oil-natural gas firing offered a challenge to the Standard Steel Works Div. of Baldwin-Lima-Hamilton Corp., Burnham, Pa. None of its personnel had experience with natural gas firing.

The conversion was tried first on a 65-ton tilting furnace. Continuous analysis of combustion gases was added at the same time. It played a dual role in training operators and in giving engineers a fast check on the efficiency of the firing system.

Results: The changeover was completed without firing difficulties. Within a short period after light-off, the trial conversion was firing about 75 per cent natural gas and 25 per cent Bunker C oil—a ratio far better than had been expected. Closer supervision of furnace operation from a fuel-air ratio standpoint was realized.

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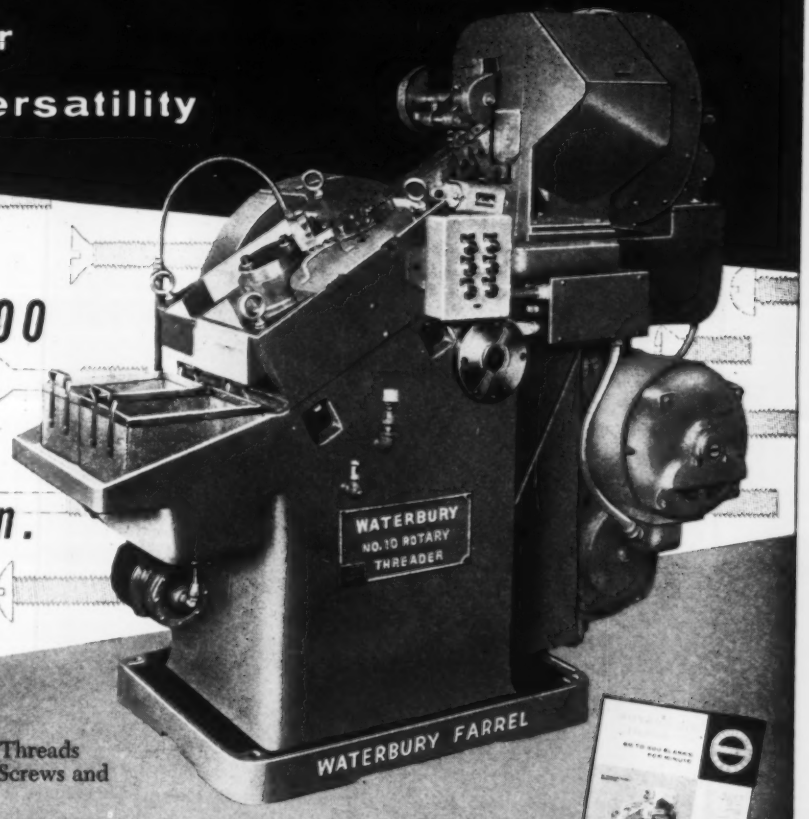

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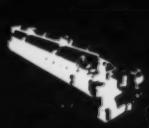
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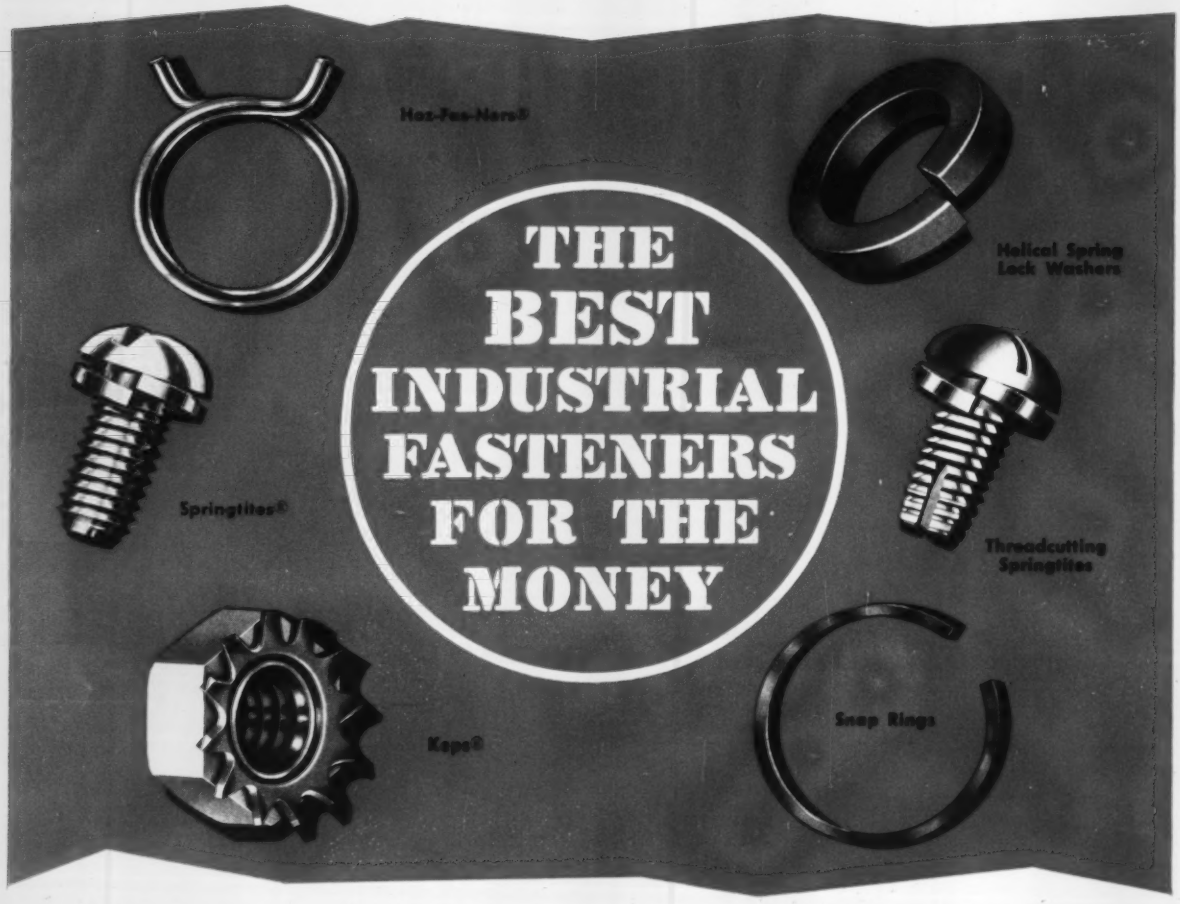

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Eaton-Reliance Industrial Fasteners are truly fasteners to be relied on. Design and industrial engineers in major fast-moving industries such as automotive, farm implement, construction machinery, appliance—to mention a few—call for Eaton quality fasteners on many varied types of assemblies.

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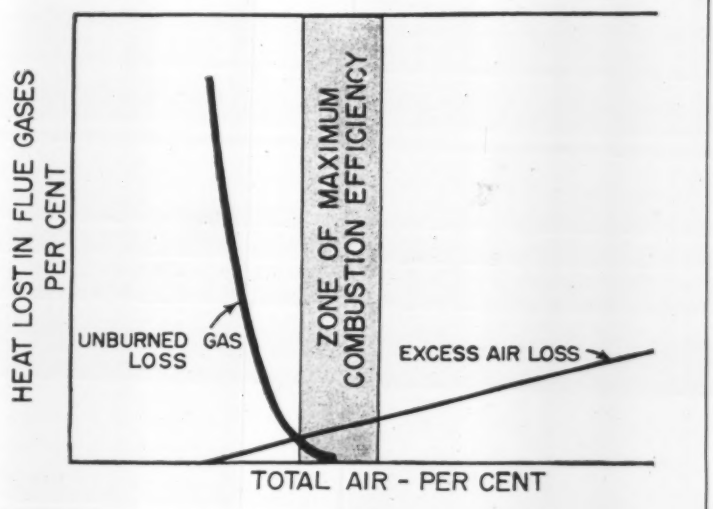

HEAT LOST IN FLUE GASES PER CENT
UNBURNED GAS LOSS
ZONE OF MAXIMUM COMBUSTION EFFICIENCY
EXCESS AIR LOSS
TOTAL AIR - PER CENT

Greatest combustion efficiency is obtained when excess air and unburned gas in flue gases are kept to minimum. Analyzing for both makes this control possible

success of the changeover goes to the gas analysis system. Here's how it helps:

1. It measures the percentage of oxygen in the flue gas, which indicates the excess air loss, regardless of the fuel burned.

2. It measures the percentage of combustibles in the flue gas, which is a check on the mixing efficiency of the burners by detecting unburned fuel.

3. It provides a continuous and permanent record, which, in addition, serves as an operator's guide.

Such systems are common on heat treating furnaces, powerplant boilers, rotary kilns, and glass tanks, but engineers at Standard Steel Works believe this is the first time that the analysis of oxygen and combustibles has been applied in combination to open hearths to help in firing a new fuel—at least in this country.

Simplified Equipment — Bailey Meter Co., Cleveland, which has been advocating such a system for open hearths, was called in to set it up. Bailey furnished this equipment:

1. Stainless steel water-washed and water-cooled sampling tubes (one for each flue) which will withstand gas temperatures of 3200° F. The water spray prevents plugging of the tube.

2. A pump and washer assembly to clean and cool the continuous gas sample.

3. An oxygen and combustibles recorder combined in a single instrument so both records appear on the same chart, giving the benefit of immediate comparison. The Bailey instrument also has space reserved for other functions, such as automatic control, which can be added at any time.

4. Pinch valves operating on furnace reversal, making it possible to use a common pump, washer, analyzer, and recorder for the two sampling tubes.

5. Air purging equipment to clean the sampling tubes periodically and simplify maintenance.

Money's Worth—The cost of the gas analysis instrumentation was under $4600 per furnace.

The gas analysis system has been trouble-free from the start. Operators quickly mastered the technique of oil-gas firing with the help of the analyzer charts. Pleased with the results, Standard Steel Works is installing the same system on its four other open hearths.

Improved Tracer

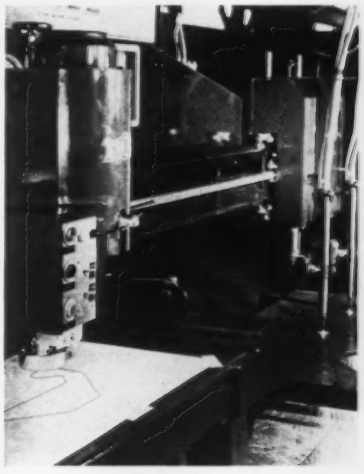
Cheap patterns guide this flame cutter. Phototransistor scans simple pencil drawing

CHEAPER flame cutting is said to be the aim of a new electronic control developed by National Cylinder Gas Div., Chemetron Corp., Chicago.

Based on a new optical sensing system, the unit steers metal cutting torches by scanning ordinary pen or pencil line drawings. It eliminates the need for costly templates. Some systems require more complex templates which are half black, half white.

Operation — Flame cutting machines can reproduce intricate patterns in plates or blocks of steel. They combine a 6000° F oxyacetylene flame and a high velocity jet of oxygen.

The tracing device accurately follows a 0.040-in. pencil line at any cutting speed. It turns 3/32-in. corners and crosses other lines. The system isn't sensitive to other lights —cutting can be done in any brightly lighted area.



ELECTRONIC EYE
. . . guides flame cutter accurately

Adapter—The scanner will fit older NCG models.

The line tracer uses a vibrator and phototransistor which is part of a closed-loop servosystem. It is tightly mounted to the tracing head.

NCG suggests that users cover often-used patterns with clear plastic to prevent tears, dark lines, or smudges.

to twist a rocket's tail...

Kaiser Steel's Montebello Fabricating Plant uses A. O. Smith electrodes in fabricating 54-ton flame deflectors that tame the flame in rocket engine tests

When you test a rocket engine, there's literally "hell to pay" in terms of heat, thrust and distortion. To tame the rocket's flame, Kaiser Steel's Montebello plant builds water-cooled, 54-ton flame deflectors. Consisting of 18 individual castings, each deflector requires over 5,000 lbs of electrodes.

Kaiser Steel is using A. O. Smith SW-15 (E-6013) and SW-44 (E-6024) electrodes for the job.

It's just one of many cases in which A. O. Smith can provide the answers to unusual as well as routine welding problems. For more details, contact *your* man from A. O. Smith or write direct.

Half-sections of 54-ton unit requiring over 5,000 lbs. of A. O. Smith electrodes.

The man from A. O. Smith

Jim McKinney is the A. O. Smith representative who worked with Kaiser Steel. More than a salesman, he's a welding specialist, ready and eager to help you with any of your welding problems.

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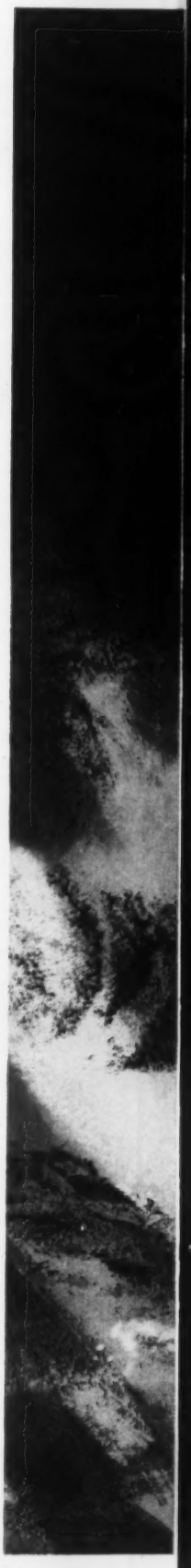
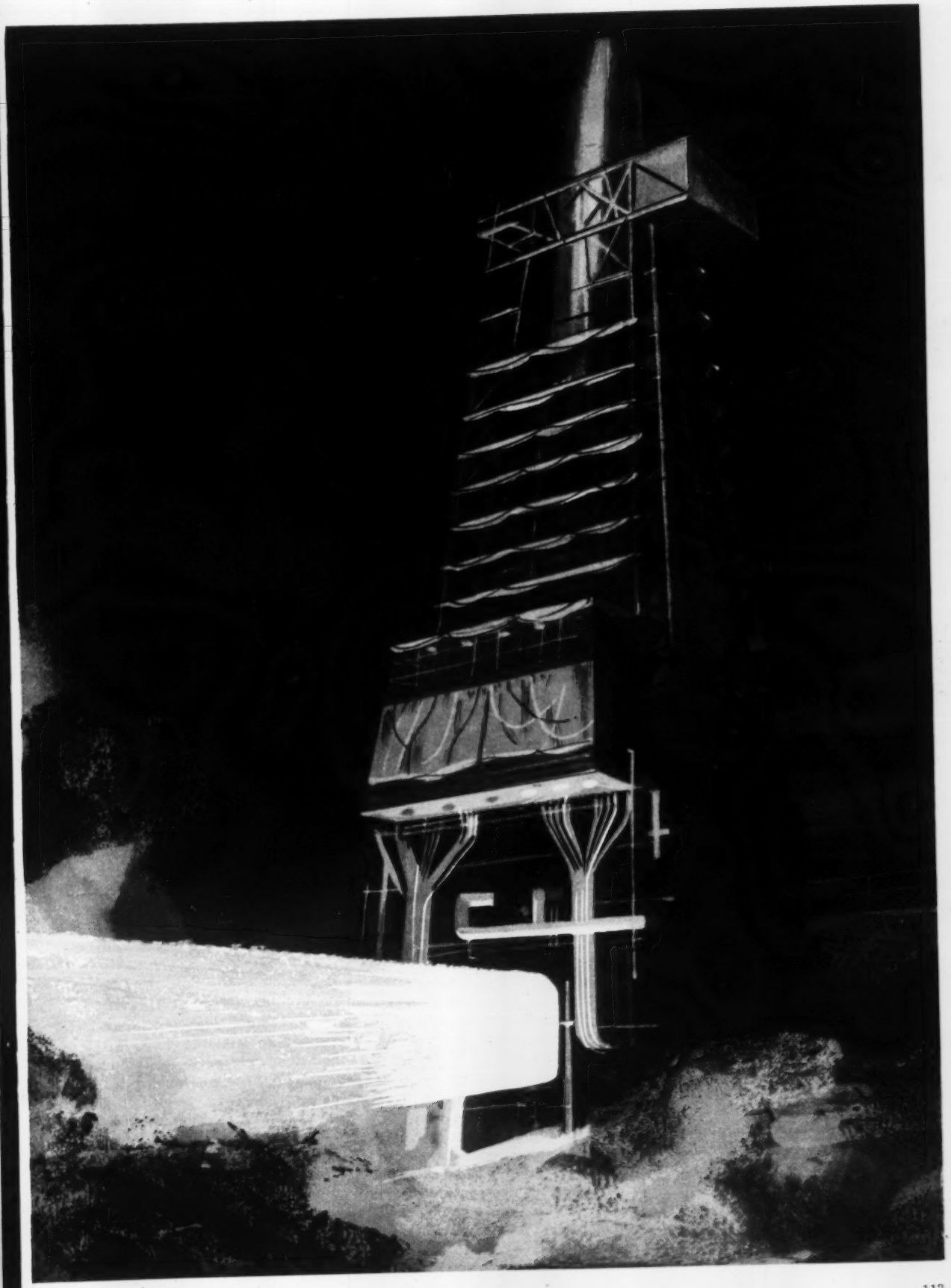
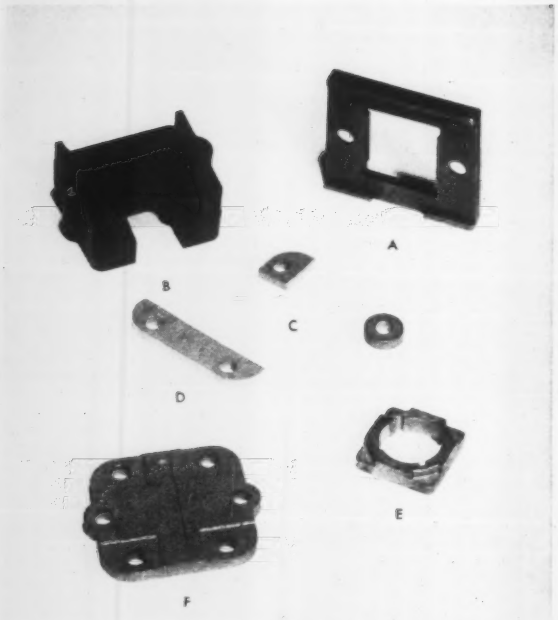






Powder metallurgy parts in the bayonet saw: A—bearing retainer slide, high density iron; B—oil-impregnated blade holder saddle, iron alloy; C and D—upper and lower drive mechanism retainers, oil-impregnated bronze; E—drive block, oil-impregnated bronze; F—cover to retain blade holder, oil-impregnated bronze

Powder metallurgy parts for handsaw: G—blade holder saddle, iron alloy; H—oil-impregnated saddle retainer, bronze; I and O—drive block, oil-impregnated bronze; J—counterweight, copper-infiltrated iron; K, L, and M—oil-impregnated bronze bearings; N—link drive, steel alloy, case hardened and oil impregnated

Powder Parts Add Sell to Tools

They enable manufacturer of home power tools to design unique operating features into two electric saws. Other benefits include reduced costs, close tolerances, self-lubrication

TO MEET competition in today's market, product designers must give the user better performance, features not available in competitive products, or both.

A leading maker of home power tools, Porter-Cable Machine Co., Syracuse, N. Y., turned to powder metallurgy parts in the design of its new hand and bayonet power saws to get unique movements and higher speeds.

In Orbit—The blades of both electric saws have orbital motions. A drive block which moves in a bearing slide retainer gives the bayonet saw blade its motion. Both parts are made by powder metallurgy. Other methods were ruled out because of high costs and manufacturing difficulties.

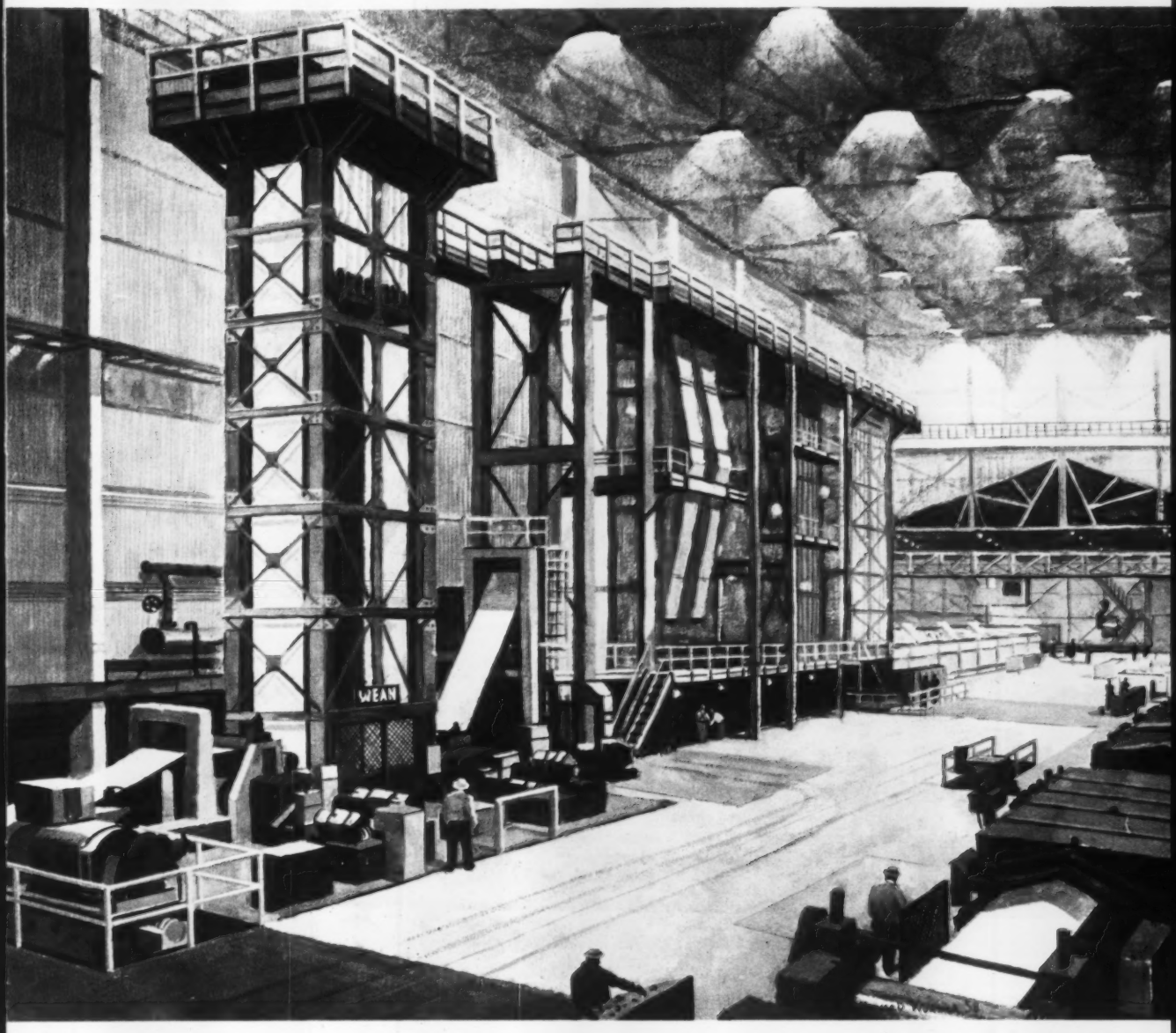
The bearing retainer slide is pressed from high density iron. Porter-Cable grinds the slide to produce a sliding fit with the drive block, then case hardens it to a depth of 0.008 to 0.013 in. The drive block is compacted from bronze powder and impregnated with oil for lifetime lubrication.

Blade Holder—Vital to the orbital motion mechanism is the blade holder saddle, which forms the bearing face for the blade holder. It is pressed and sintered from steel alloy powder, then steam treated to develop a black oxide finish. The part supports four needle bearings which in turn form the support for the blade holder.

The blade holder saddle has a counterbore 0.990 to 1.000 in. in diameter and 0.281 to 0.286 in. deep. Four holes (molded in by the fabricator) are reamed to size. An oil impregnated, bronze powder, blade holder cover is the outboard bearing support for the four needle bearings which were designed to guide the blade holder.

Oil-impregnated bronze powder parts are also used for the upper and lower drive mechanism retainers. They form bearing sur-

Wean, "Youngstown" and Annealing...



The dynamic steel industry has spearheaded our industrial growth by a continuing interest in tomorrow's progress as well as today's product. The continuous strip annealing process is typical of this constant search for better products and improved methods of making them. Long recognized as a pioneer in the development of the continuous line process, it was only natural that Wean was one of the leaders in the development of continuous strip annealing.

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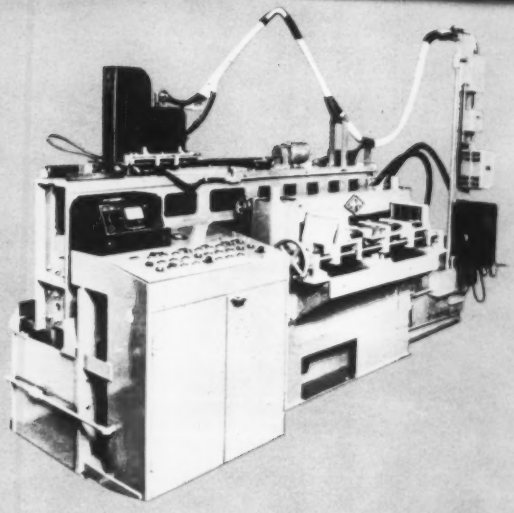
THE NEW MPM Shear Welder



CONTINUOUS SILICON SHEET PRODUCTION

Shearwelder for coil build up line for 42" wide Silicon Steel from .015" to .030" thick.

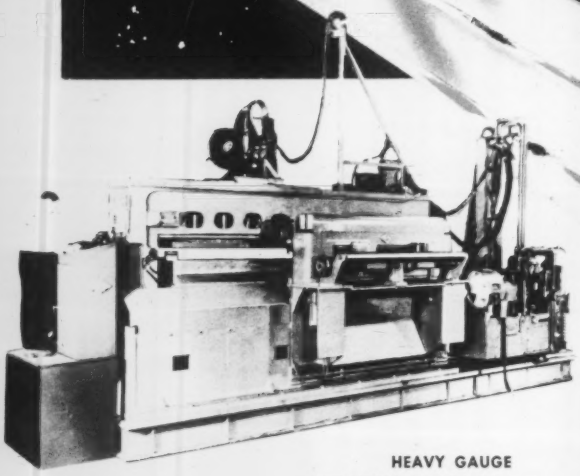
.....more automation for even faster Steel Production!

Metal Processing Machine Company's new Shearwelders are outstanding because of their advanced design incorporating automatically sequenced operations.

Shearing and welding are performed at the same station with positive clamping right at the work area, thereby insuring perfectly aligned butt welds.

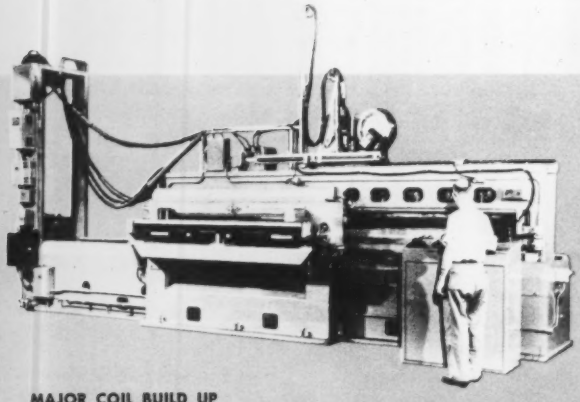
"M.P.M." welds are **extremely ductile**, permitting subsequent rolling, forming, or blanking operations. Weld joints are smooth and require **no trimming**.

Rugged construction is insurance for minimum maintenance and compact design saves floor space.



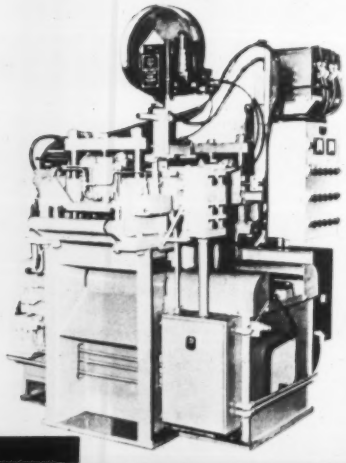
HEAVY GAUGE STAINLESS PRODUCTION

Shearwelder for butt welding 60" wide x .250" thick Stainless Steel.



MAJOR COIL BUILD UP

Shearwelder for Carbon Steel coil build up line for .015" to .060" thick x 72" maximum width.



CONTINUOUS TUBE MILL PRODUCTION

Shearwelder used with strip looping device for splicing coil to coil to permit continuous production of tube mill.

THE METAL PROCESSING MACHINE CO.

SUBSIDIARY OF THE McKAY MACHINE CO.

YOUNGSTOWN, OHIO

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faces and retainer plates for moving parts, providing lubrication and easy assembly.

Handsaw — A group of sliding parts generates the orbital blade action of the handsaw: A blade holder saddle slides in a retainer, and a drive block fits into the saddle.

Powder metallurgy methods were considered by Porter-Cable to be the best way to make the parts because close tolerances and self-lubrication were required. The saddle is a steam treated, oil impregnated iron alloy part. The saddle retainer and drive block are made of bronze powder and oil-impregnated.

Other Powder Parts—A copper infiltrated, iron powder counterweight is used to balance the motion-producing mechanism in the handsaw.

Another part is the link drive that connects the power source to the blade. The oil-impregnated part is pressed from an alloy steel powder, then case hardened. The pinion bearing used on the armature shaft and the main end bearings on the driveshaft are oil impregnated, bronze powder parts.

Two New Alloys Offered

Two new high temperature alloys for jet engine and gas turbine uses are available in experimental quantities on a development basis from Allegheny Ludlum Steel Corp., Pittsburgh.

Alloy D-979 is a nickel-chromium based material produced by the consumable electrode vacuum melting process. Designed for applications requiring high strength at temperatures to 1600° F, it offers superior tensile and creep rupture properties.

Alloy AF-71, developed by Allegheny Ludlum under contract with the U. S. Air Force, is a high temperature, high strength alloy with good creep-rupture properties in the 1000 to 1500° F range. It is an iron - chromium - manganese material with low strategic alloy content. Allegheny Ludlum says it is almost as strong at 1500° F as other superalloys containing 40 to 50 per cent cobalt.

Rollers in the racks make it easy to move this 900-lb fixture from the truck

Truck Rack Eases Handling

Compact electric trucks and storage racks with rollers give this company a flexible, inexpensive material handling system. They simplify storage of nonpalletized parts

HERE are some ideas on how to save time in handling and storing big in-process parts, fixtures, and raw materials.

Case History—Roller storage racks and electric trucks that can maneuver in aisles 5¾ ft wide with loads 48 in. long are used by the Intertype Co., Brooklyn, N. Y., a division of Harris-Intertype Corp. The company makes printing and broadcasting equipment.

Take the moving of 900-lb nonpalletized milling fixtures to storage with JackStacker walkie trucks.

The operator lines up the truck's load-carrying platform with the roller racks, then slides the fixture off the platform and onto the rollers. He reverses the process to remove a fixture from the racks. The racks and the truck (its capacity is 3000 lb) are made by Lewis-Shepard Products Inc., Watertown, Mass.

Raw materials such as round steel bars are placed on metal skids, in-process parts in metal skid boxes. They are also stored in racks. Floor space is saved because the walkie trucks can stack to the ceiling—or to heights of 16 ft. The average load is about 1600 lb.

More Help—The trucks are used 8 hours a day, five days a week. Among their other duties: One is being used as a platform from which to do overhead work and maintenance.

In the gleaming world of stainless steel there is no better source for **polished finishes** than Eastern, home of the largest stainless steel polishing department on the globe. Backed by years of experience, technological skill and unmatched facilities, Eastern produces mill-polished sheets that will meet your specifications for uniformity and quality at a minimum cost.

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This 5000-lb cast stainless pump casing handles pressurized water (about 525° F) at the Shippingport (Pa.) Atomic Powerstation

Alloy Casters See Growth

Users and producers predict bright industry future, especially in high temperature, high pressure nuclear applications. Cite need for standard specifications

HIGHER pressures and temperatures in power generating equipment (both nuclear and conventional) will bring about greatly increased use of stainless and high alloy castings, believes Dr. E. N. Skinner of International Nickel Co.

Dr. Skinner spoke at the third Heat & Corrosion Resistant Alloy Castings Conference at Inco's Harbor Island, N. C., corrosion test station.

New Designs—Only by increasing temperatures and pressures can you gain efficiency and lower unit cost in power generating equipment. When designing components (such as pumps, valves, and fittings needed to handle pressurized water system in nuclear powerplants), high alloy castings have two big selling points:

1. Because of their complex shapes, the components are most economically made as castings. 2. At the higher temperatures being considered for new designs (above 1500° F), cast alloys have relatively great strength.

Specifications—Casting producers say they recognize the need to reduce the cost of equipment used in reactor service but that some specifications force foundry expenses too high.

Many users and producers feel that present casting specifications are impeding the development of nuclear power equipment. Separate specifications covering components for nuclear power equipment, set up by the military, individual contractors supplying major equipment, and various groups responsible for standards, often are confusing.

Unrealistic—Many specifications have little to do with service conditions, casters complain. Demands for surface finish are considered excessive.

Some consumers believe needs can be served with finishes half as smooth as those being requested. Many specifications call for an rms finish, and some producers feel the designation is wrong for castings.

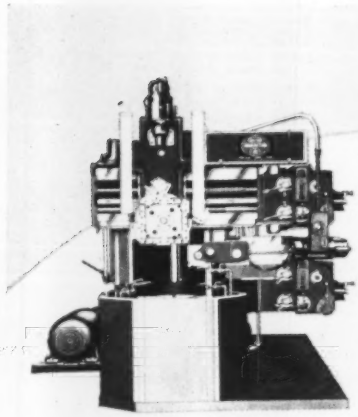
Conference participants agreed the right standard for cast surfaces is the cast surface comparator.

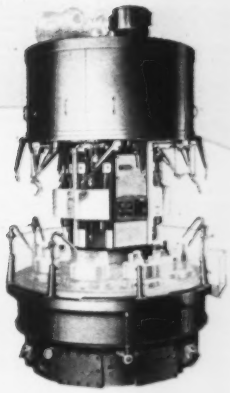
Needs—Reports from equipment makers indicate a need for improved materials to handle corrosive liquid coolants. Also needed are higher strength alloys for use in pressurized water reactors operating at 600 to 1000° F. Several answers were suggested, including the use of ferritic alloys such as ACI Type HE.

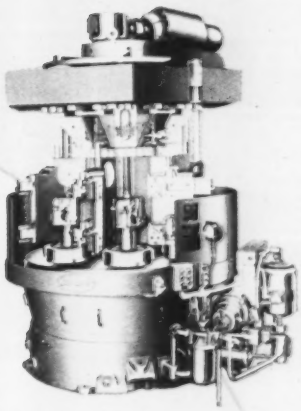
One encouraging report: In tests, pumps with impellers cast of Type CF-8C (it contains columbium), have handled liquid sodium at about 950° F. The company that made them says it is designing an all-cast stainless pump (impeller and casing) of Type CF-8, most frequently used of the 18-8 stainless alloys, to handle uranyl sulfate.

In Use — Detroit Edison Co.'s Enrico Fermi nuclear powerplant, under construction at Monroe, Mich., will include a pump cast of Type CF-4 or CF-8C stainless alloys to handle liquid sodium at 800 to 1000° F. The central station powerplant will use liquid sodium as a heat exchange medium to generate steam.

The Shippingport (Pa.) pressurized water reactor, operated by the Duquesne Light Co., uses cast stainless main stop valve bodies in each of the four primary coolant loops and a 5000 lb, double volute pump casting which meets ASME boiler code requirements.







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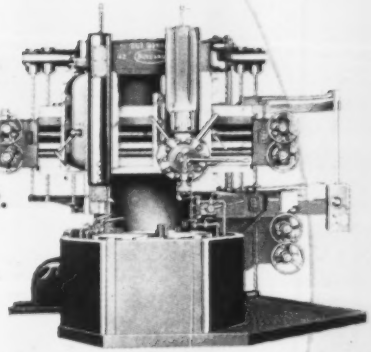

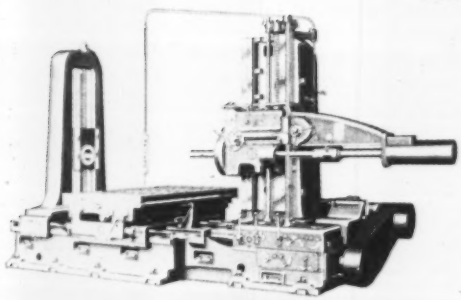

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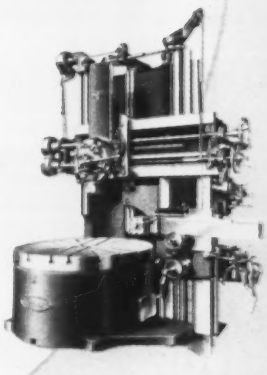

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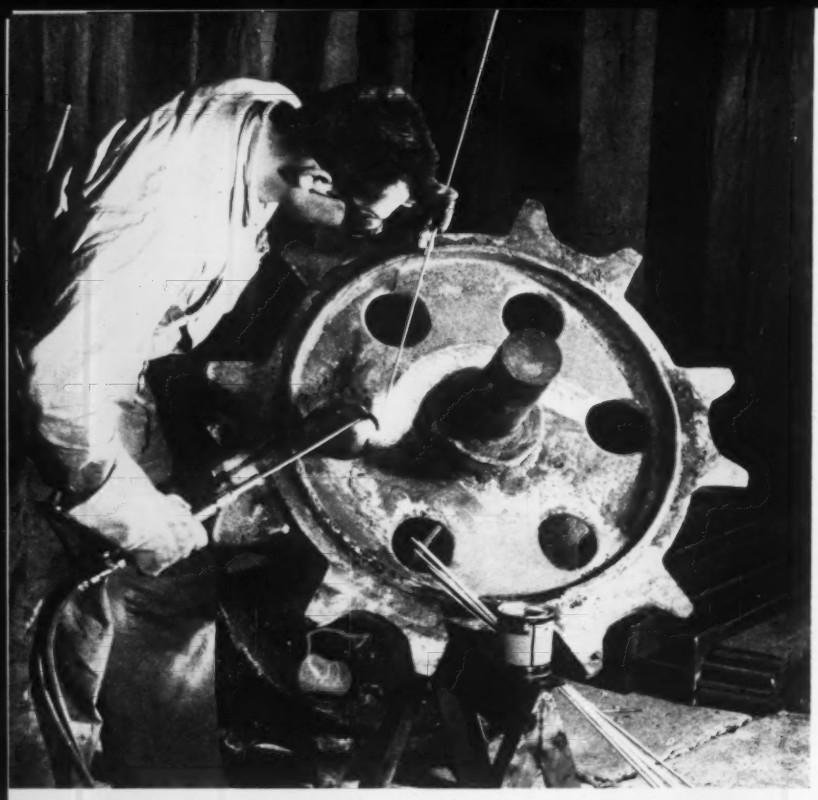
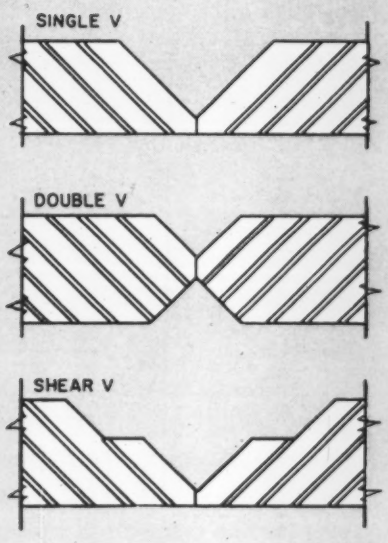


It's frequently cheaper and more efficient to repair than to replace. Operator applies low fuming bronze rod to repair a crack in a large conveyor drive sprocket

Grooves for Braze Welding Cast Iron



How To Weld Copper and Its Alloys

In addition to joining similar metals, copper alloys have proved their worth in joining and repairing other metals. Here are some of the rules for brazing and braze welding

PART FIVE

BRAZE welding is a basic tool for those who repair iron and steel equipment. All you need are low fuming bronze (RCuZnC) or naval brass (RCuZnA) electrodes, comparatively low temperatures, and little preheating to bring the weld area to a bright red.

Its advantages include: 1. Economy. 2. Easy application. 3. Low residual stresses, low distortion, and minimum cracking tendency.

Cast Iron

No embrittlement is encountered in the welding of cast iron, and the weld areas are machinable.

In repairing iron castings, use the correct joint design. Edges should be beveled 45 degrees (90 degree included angle) in single, double, or shear-V joints. Avoid grinding: It smears the surface with graphite and can interfere with bonding. You can eliminate free graphite by heating to a dull red with an oxidizing flame. Clean the joint with a stiff wire brush.

Serves Need—Preheating a casting at 600 to 1200° F serves a twofold purpose: Oil removal and maintenance of proper heat levels in large pieces. It's also required for complex castings (spoked wheels, gears, and frames).

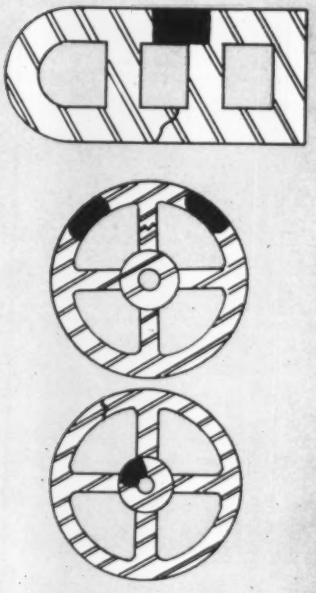
Preheat areas and sequence vary with the casting shape. They must be planned by experienced operators.

Weld slightly uphill. It will keep the molten weld metal from flowing onto a cold surface. The surfaces are left open to the heat, allowing the molten bronze to spread automatically when the correct temperature is reached. If you weld in the horizontal, take care to heat the surfaces thoroughly and apply the bronze sparingly at first. It keeps the braze metal from flowing forward too fast.

In vertical brazing, molten metal cannot flow ahead onto cold metal, and the danger of cold laps is practically avoided.

Auxiliary — Sound brazed joints require a suitable flux — the choice is a matter of preference. While special ones will eliminate surface carbon on cast iron, you

Typical Preheat Locations



By LESTER F. SPENCER
Metallurgist
West Allis, Wis.

should use them only for the first tinning. They may produce porous welds if used throughout.

Flux can be sprinkled on the part during heatup and should be added continuously during deposition. The hot rod can be dipped into dry flux, but it's more efficient to dissolve some in boiling water and paint electrodes with the solution prior to use. That has the advantage of added protection from oxidation.

Adjusting Equipment—The torch should have a neutral or slightly oxidizing flame. Select a tip size to melt and flow the bronze without having to stick the inner cone of the flame into the weld pool. The intense heat of the inner cone produces heavy fumes and may severely oxidize the surfaces to be brazed. Avoid prolonged heating of the weld metal, or puddling—it wastes time and gases and may impair quality. Forehand welding is the usual way, but a backhand technique is all right for heavy work.

Cast steel techniques are similar to cast iron. Joint bevels are less important, and you don't need a tinning flux.

Wrought Steel

Braze welding is used extensively by makers of furniture, bicycle frames, lawn mowers, portable saws, and similar assemblies.

Lap and butt joints are normally used. A lap joint depends on capillary action to pull in molten bronze. Strength depends on the area bonded and the clearance between the surfaces.

Although influenced by capillary action, the major portion of butt-weld joint strength is supplied by a fillet of the brazing alloy.

Automatic fluxing works well with high production rates. A vapor fluxing apparatus in the fuel-gas line delivers a small but constant flow of flux as soon as the flame hits it. Fluxing is more complete; weld metal more fluid; and there is less tendency to fume. A relatively small amount of flux is deposited which cuts cleaning. Remember: The joints must be accessible, and it is not suitable for lap joints.

Operators ordinarily apply the rod manually to repair large castings or assemblies with oxyacetylene. But you can preplace rings or slugs of braze metal at joints. The method works well on small assemblies which can be adapted to mechanization.

Brazing

This method is closely associated with braze welding. Silver filler metals are widely used. They have flow temperatures of 1150° to 1600° F. The ones with higher flow temperatures are for pure copper and the high copper alloys.

Lap, shear, and butt joints are best, and you must add a flux. Any heating method is suitable if the parts are quickly brought up to brazing temperature.

Avoid Reduction — Tough pitch copper can be brazed without oxide embrittlement, but avoid a reducing atmosphere, particularly hydrogen.

Lap joints are widely used: Make the lap three times the member thickness for maximum strength.

Both the copper-phosphorus and the copper-phosphorus-silver brazing alloys work without fluxing, but you'll get a smoother, better looking joint with flux. All other brazing alloys require fluxing.

Deoxidized copper can be brazed, but you don't have to worry about embrittlement.

High zinc brasses are brazed with low temperature silver. Fluoride fluxes are better since they are active at the lower temperatures. The low zinc brass alloys can be brazed with a greater variety of fluxes.

Bronze—Silicon bronzes are readily brazed. Fluxing is especially important since these alloys form a refractory oxide which must be completely removed. In addition, it's possible for alloys to suffer some intergranular penetration of the brazing alloy when the structure is under stress. You can prevent it by stress relieving prior to the brazing operation. That is usually done by slow heat during the brazing operation.

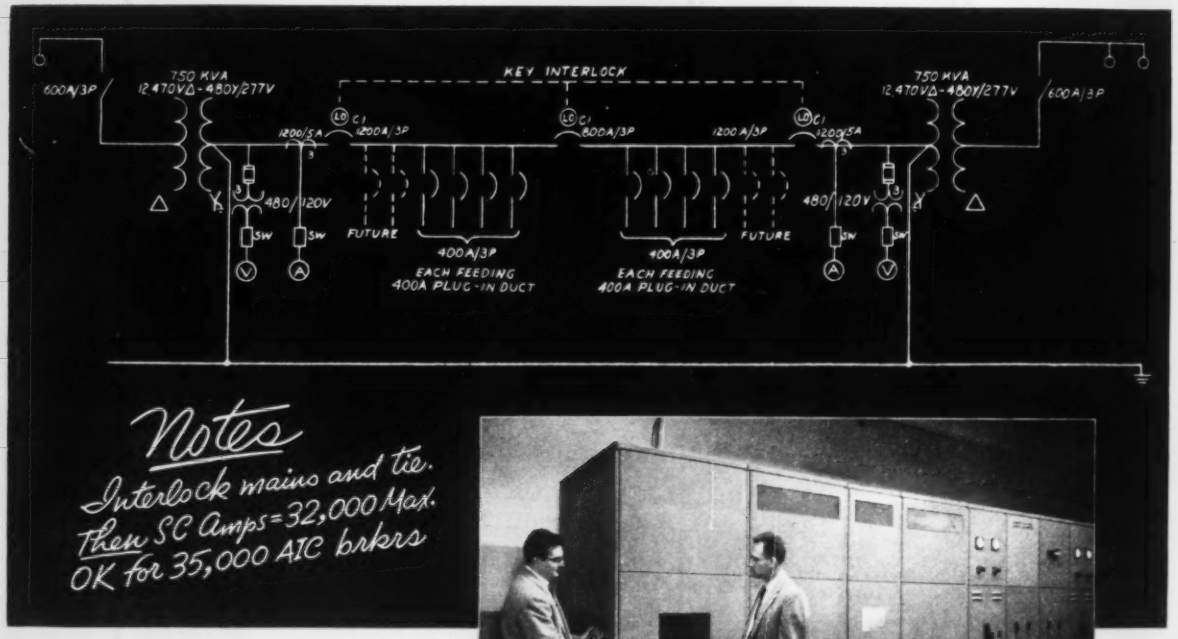
Phosphor bronzes (due to high tin and occasionally lead) require flux protection. The higher melting bronzes can use standard brass; all the phosphor bronzes can be brazed with silver. Special fluxing is required for silver brazing aluminum bronze.

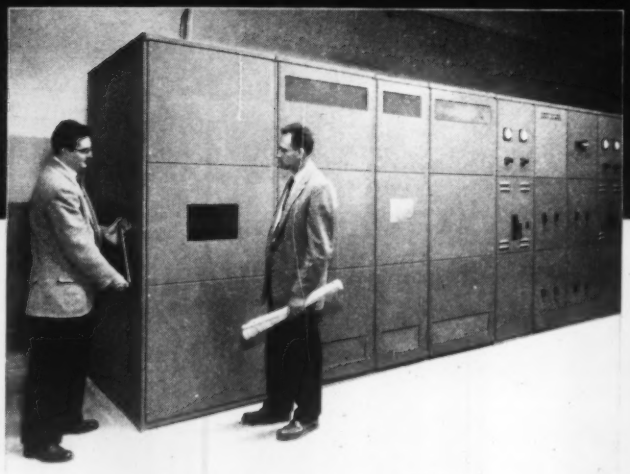
You may run into trouble with dissimilar combinations like aluminum bronze to brass. You use two fluxes, one for each metal.

Nickel alloys respond well to brazing. Use a stress relief to avoid intergranular penetration. Silver brazing alloys are the usual thing, but brass works if you're careful during heatup (brass has a high flow temperature). Nickel bearing alloys are relatively poor heat conductors, so watch a tendency to overheat.

Copper-beryllium alloys require an exceptionally clean surface and a reactive flux containing fluoride compounds. Try to prevent the formation of beryllium oxide. Since this alloy is frequently solution treated, the silver brazing alloy is limited to those compositions that have a flow temperature above 1450° F.

• *An extra copy of this article is available until supply is exhausted. Write Editorial Service,* STEEL, *Penton Bldg., Cleveland 13, Ohio.*





In Unit Substations COORDINATED DESIGN

Cuts Costs and Saves Space!

Square D designs and builds a complete line of substations for any application, indoor or outdoor—with dry or liquid-filled transformers—with large air breakers or molded case breakers—with motor control units.

A typical example is this 1500 KVA double-ended unit substation, designed to meet the special requirements of a Lexington, Kentucky, plant. Flexibility for future expansion and complete safety without service interruption were essential. The following features are incorporated in the unit:

Main breakers are 1200-ampere air circuit breakers

Feeder breakers used to feed Square D plug-in duct, are molded case breakers

Tie-in breaker is key-interlocked to permit tying units together when operating on one transformer in an emergency

Interrupting capacity of all molded case breakers exceeds the total maximum available short circuit current, including 100% motor contribution

By the proper application of molded case breakers, Square D engineers achieved a substantial reduction in both the size and the cost of the substation—and with no sacrifice in performance.

For the complete story of Square D coordinated design, write Square D Company, 6060 Rivard Street, Department SA, Detroit 11, Michigan.

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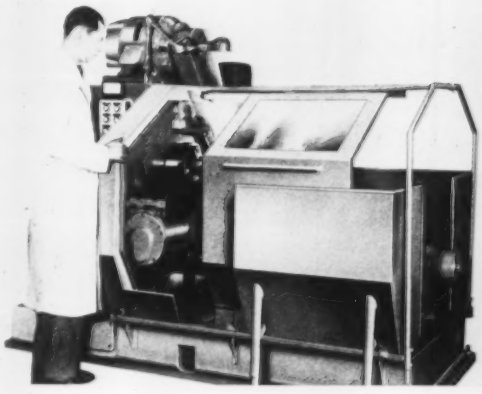
Automatic Turret Lathe Has Rapid Setup

An automatic turret lathe for fast production of hard-to-machine alloys, Model 3E-15, has a 10-in. chuck capacity and 11½-in. swing over base ways.

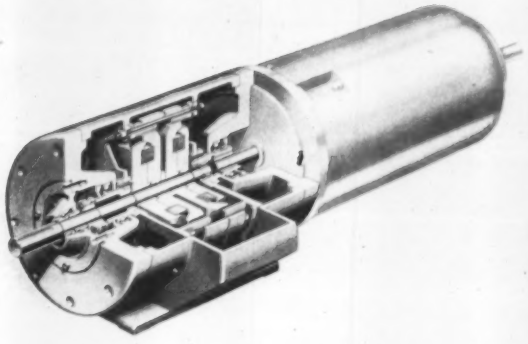
The front and rear cross slides are individually adjustable along the base ways. The control mechanism allows the operator to set slides for on-time or delayed movement (relative to any turret face) by merely turning a selector switch.

With no cams to change, setup time has been reduced, and production runs of 25 pieces can be handled on a fully automatic basis. Contributing to shortened setup are the easy to set programming drum and the readily accessible change gears.

The lathe is equipped with a 15-hp headstock. *Write*: Potter & Johnson Co., Pawtucket, R. I.



Infinitely Variable Drive Eliminates Shock Load Factors



The infinitely variable speed Marvex drive, using a constant speed motor, is available in four dripproof models and six sizes.

Designed on the eddy current principle, the unit includes a separate controlled-slip coupling. It can be used as a variable speed gear motor or motor, or a special unit for integral mounting of speed reducers.

The unit is shockproof since the coupling is a magnetic field.

Driven by a 100-hp motor at 1750 rpm, units can be stalled at full torque without heating. Motors up to 150 hp at 1750 rpm are handled. *Write*: Cone-Drive Gears Div., Michigan Tool Co., 7171 E. McNichols Rd., Detroit 12, Mich. *Phone*: Twinbrook 1-3111

Automatic Print-Out Provides Permanent Gaging Records

Permanent records of single and multiple dimension gaging information are obtained automatically with a print-out system used with automatic or manual inspection gages.

The recording system produces a documented dimension report of individual parts, or it may be used by suppliers of missile, ordnance, and precision components that require individual inspection reports.

The printer records single measurements, or with two related ones, it computes the difference and prints the total.

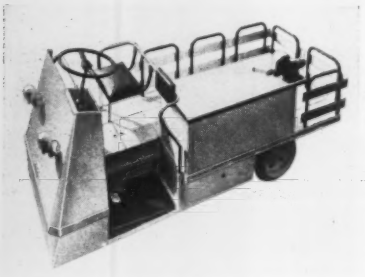
Plunjet air gage or Electrojet gage cartridges can be used as size sensing elements. *Write*: Sheffield Corp. Dayton 1, Ohio, a subsidiary of Bendix Aviation Corp. *Phone*: Clearwater 4-5377

NEW PRODUCTS and equipment

Truck Serviced from Top

A three-wheel industrial maintenance truck, powered by electricity, speeds a two-man crew to plant trouble spots. It has built-in work facilities, carries loads up to 1 ton.

The Electri-Car has provision for a stand-up driver and a sit-down rider. It comes with four industrial batteries and a built-in automatic charger, work bench with vise, built-in tool box, and a load area with steel and aluminum stakes.



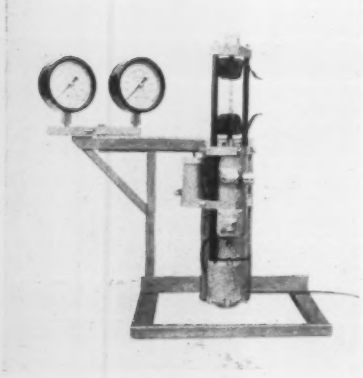
Its Dyna-Power gear motor, built for continuous and intermittent heavy-duty operation, has direct in-line, two wheel drive.

The truck has a lift-up body for easy maintenance of batteries and mechanical parts. *Write*: Electri-Car Div., Victor Adding Machine Co., 3900 N. Rockwell St., Chicago 18, Ill. *Phone*: Keystone 9-8210

Tester Can Be Modified

The Cal-Tester, normally operated in a horizontal position, can be used vertically with the testing area in an up or down position.

Machine and gages are mounted on a portable, self-contained stand, and can be detached quickly for horizontal operation. The arrangement provides greater possibilities for making tensile, compression, and flexure tests on metallic and nonmetallic materials.

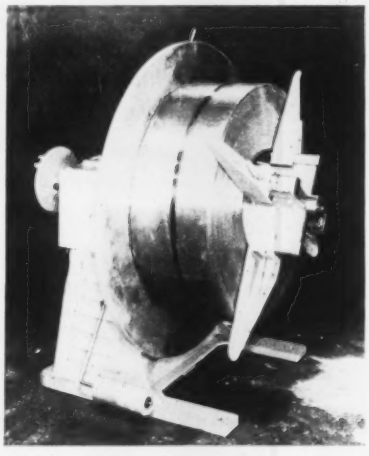


With accessories, tests with constant rate of load and ram speed control can be conducted. The unit is suited for use with environmental test chambers and meets Army, Navy, other federal, and ASTM specifications for accuracy and performance. *Write*: Cal-Testing Machine Co., 2735 S. Robertson Blvd., Los Angeles 34, Calif. *Phone*: Vermont 9-6200

Reel Centered Rapidly

A motor-driven centralizing reel, Model ACR-1642, has a centering arrangement controlled by a handwheel. The cross members expand or contract to suit the inner diameter of the coil depending on the direction or rotation of the wheel.

Specifications: Takes material up to 16 in. in width, inner diameters from 14½ to 22 in., outer diameter 42 in. at 16 in. inner diameter, and weight capacity of 2500 lb.



Included is a 2-hp motor for operation on 220/440 volts (3 phase, 60 cycles, alternating current). *Write*: U. S. Tool Co. Inc., Ampere (East Orange), N. J. *Phone*: Orange 5-4000

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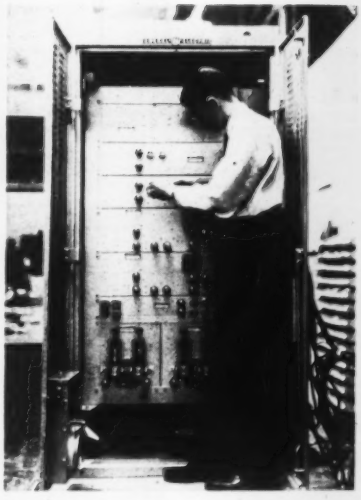
Pre-engineered, Mark II numerical control package units can be applied to any machine requiring point-to-point positioning of linear or rotary motions. They are available for immediate delivery.

Benefits are seen in handling small lot production jobs at extremely close tolerances. Motors, operator's controls, position pickup devices, and tape reader are included in the package.



The unit offers positioning speeds up to 60 ipm and has an electrical accuracy of ±0.0005 in. at travel lengths up to 99.99 in. For length of travel up to 399.99 in., electrical accuracies of ±0.005 in. can be obtained.

Mark II operates from standard eight channel, 1 in. wide tape or manually set decade switches. Operation can be semiautomatic or fully automatic. *Write*: General Electric Co., Schenectady 5, N. Y. *Phone*: Franklin 4-2211

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A 24-in. semiautomatic lapping machine can deliver flatness to less than one light band (0.00011 in.) and a surface finish as low as 1 microinch rms.

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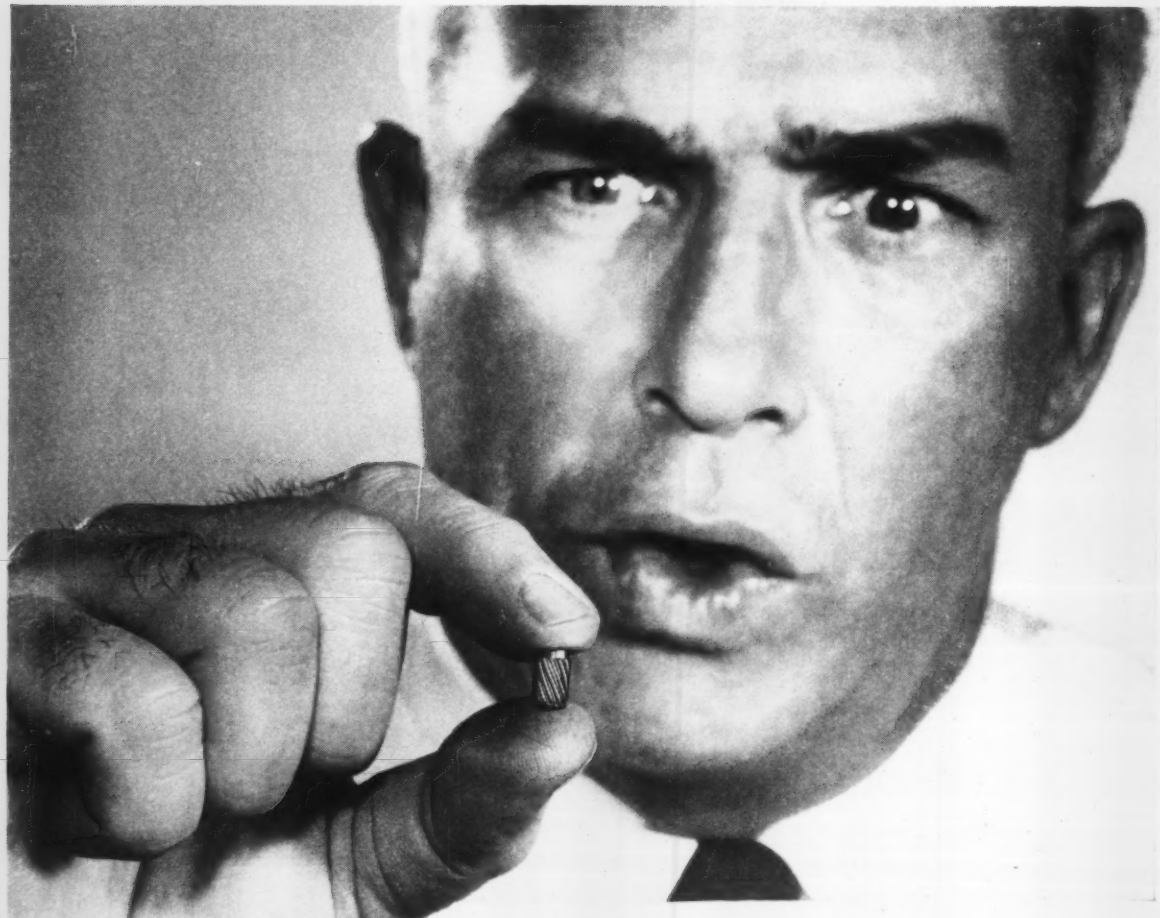

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THE BRISTOL BRASS CORPORATION • SINCE 1850, MAKERS OF BRASS STRIP, ROD AND WIRE IN BRISTOL, CONNECTICUT

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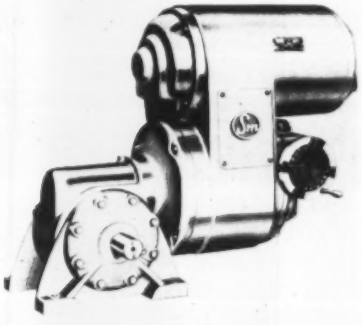
a variable speed drive for selecting best lapping rate, and magnetic truing rings which maintain continuous plate flatness while the machine is in operation.

The unit is designed primarily for doing small pieces in production lots but can accommodate any large workpiece that will fit in one of the 8⅞ in. ID truing rings.

Masonite separator plates can be cut, drilled, or otherwise shaped to accommodate parts of any outline. Toughest alloys can be lapped in the hardened state. It also handles nonferrous metals such as brass, bronze, and aluminum. *Write*: Taft-Peirce Mfg. Co., Woonsocket, R. I. *Phone*: Poplar 2-1000

Gear Motor

This variable speed drive is integrally combined with a right-angle gear reducer. Units may be operated horizontally or vertically, shaft up or down.

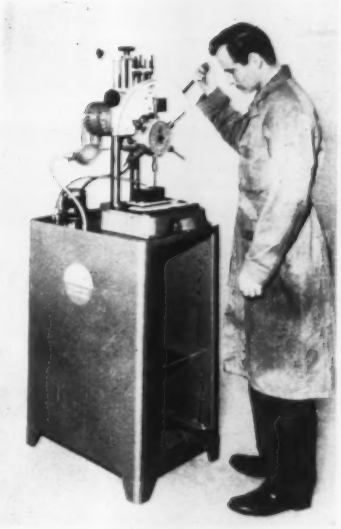


It is available in dripproof and totally enclosed construction. Speeds range from 5.5 to 360 rpm, and speed variations from 2:1 to 10:1. *Write*: Sterling Electric Motors Inc., 5401 Telegraph Rd., Los Angeles 22, Calif. *Phone*: Raymond 3-6211

Six-Spindle Indexing

A floor model turret drill for machining holes up to ¼ in. in steel can perform a series of six operations from one work location.

The turret is power indexed, rotates itself, and only the spindle in use is in operation. Indexing is automatic, but each spindle will repeat any number of feed strokes without indexing if duplicate hole



sizes or operations are desired.

Each spindle operates at its own preselected speed, without need for changing belts, gears, or other speed reducers. Range varies from 350 to 6200 rpm. Two-step pulleys on the motor drive produce two complete speed ranges on each spindle.

The machine is mounted on an enclosed pedestal equipped with a coolant circulating pump and reservoir. *Write*: Burgmaster Corp., small tool division of Burg Tool Mfg. Co. Inc., 13226 S. Figueroa St., Gardena, Calif. *Phone*: Davis 9-4158

Motor Submersible

Submersible alternating current motors for coupling to pumps which operate continuously in oil, water, or liquid chemicals may be had in ratings from ¾ through 15 hp.

The universal mounting flange of these polyphase, single voltage motors is connected directly to most standard pumps. The shaft of the motor serves as the pumpshaft, and

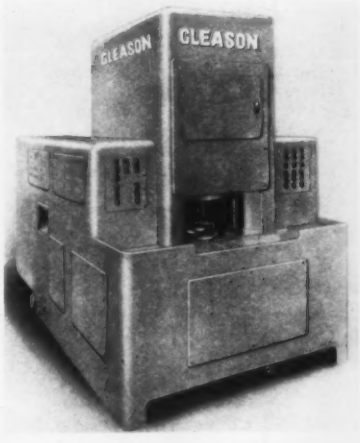
the assembly can be attached as a unit.

The pressureproof motors are oil-filled. A Neoprene diaphragm in the motor base flexes to offset differences between internal and external pressures. The single unit frame is corrosion-proof. *Write*: Reliance Electric & Engineering Co., 24701 Euclid Ave., Cleveland 17, Ohio. *Phone*: Redwood 2-7000

Quencher Speeds Work

The No. 117 quenching press handles heated gears and other round, flat, and cylindrical parts so that they are quenched quickly without distortion.

Rapid production results from decreased time in quenching dies plus automatic unloading. The machine will receive and discharge a workpiece in about 30 seconds.



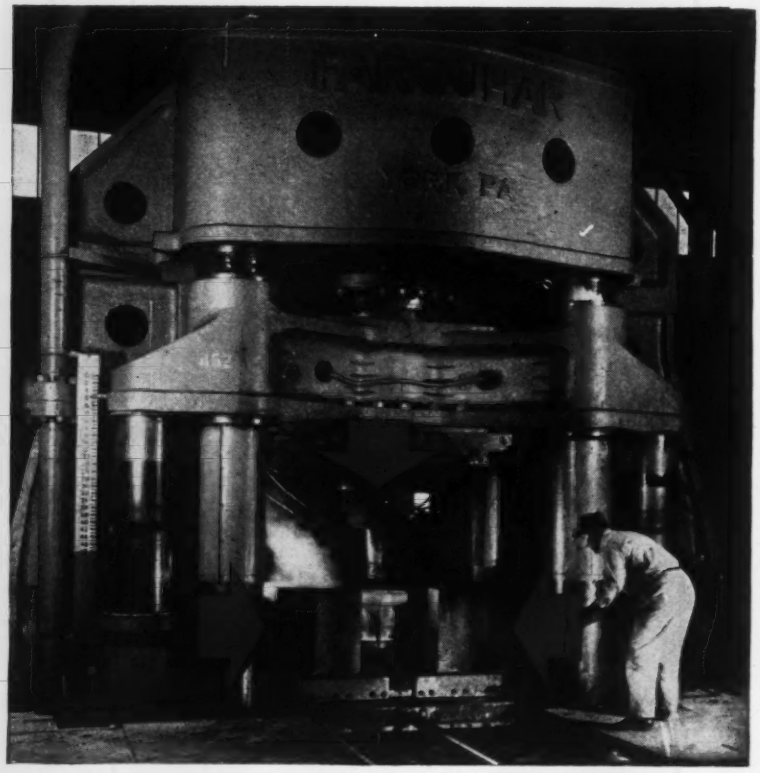
Pulsing (allowing the workpiece to contract without undue strains) is controlled by a valve which may be preset to any cycle. A built-in pumping system (300 gpm capacity) provides correct oil flow.

Ring gears and cylindrical parts up to 8½ in. maximum diameter and 8 in. maximum height can be handled. *Write*: Gleason Works, Rochester, N. Y. *Phone*: Greenfield 3-1000

Tractor Pulls Carriers

A motor-powered tractor, Type MT, for use on overhead tramrail systems is driven by two steel rollers under spring tension against the bottom of the track. Rubber drive rollers are available.

The unit can be used to advantage as a single-motor drive for



This 5000-ton Farquhar Split-Die Forging Press is used to form components of oil-well equipment at the Cameron Iron Works, Inc., Houston, Texas.

This Farquhar Split-Die Forging Press

forms both bore and periphery in one fast, clean operation

The job was to press-forge parts weighing up to 2000 pounds having irregular contours on both the bore and the periphery. These parts in service had to withstand working pressures up to 15,000 pounds per square inch and temperatures up to 1600 degrees F. The successful solution was to put the job on a Farquhar Split-Die Forging Press.

This Farquhar Split-Die Forging Press applies horizontal forces from opposite directions as well as the normal down-action. The result is the production of high-strength parts with unusually clean surfaces whatever the contour. This cuts finish machining time to a minimum and provides forgings with uniform physical properties and controlled grain structure. Reported production savings run as high as 25% with rejects kept to a minimum.

For your tough forming jobs, investigate Farquhar Split-Die Forging Presses. Write today for complete information or ask for our recommendations and proposals.

Special Machinery Built to Your Requirements . . .

Our skilled staff will economically build your special machinery. We'll process your inquiry promptly.

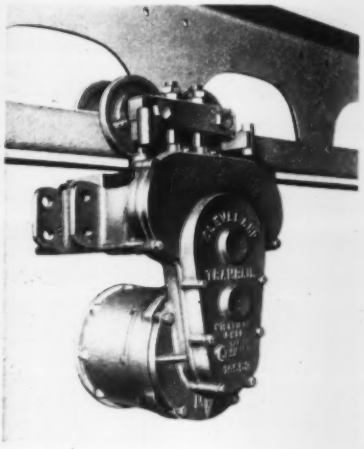
A. B. FARQUHAR DIVISION
The Oliver Corporation
Press and Special Machinery Department
York 55, Pennsylvania

OLIVER

Farquhar PRESSES

Also Manufacturers of Farquhar Conveyors

NEW PRODUCTS and equipment



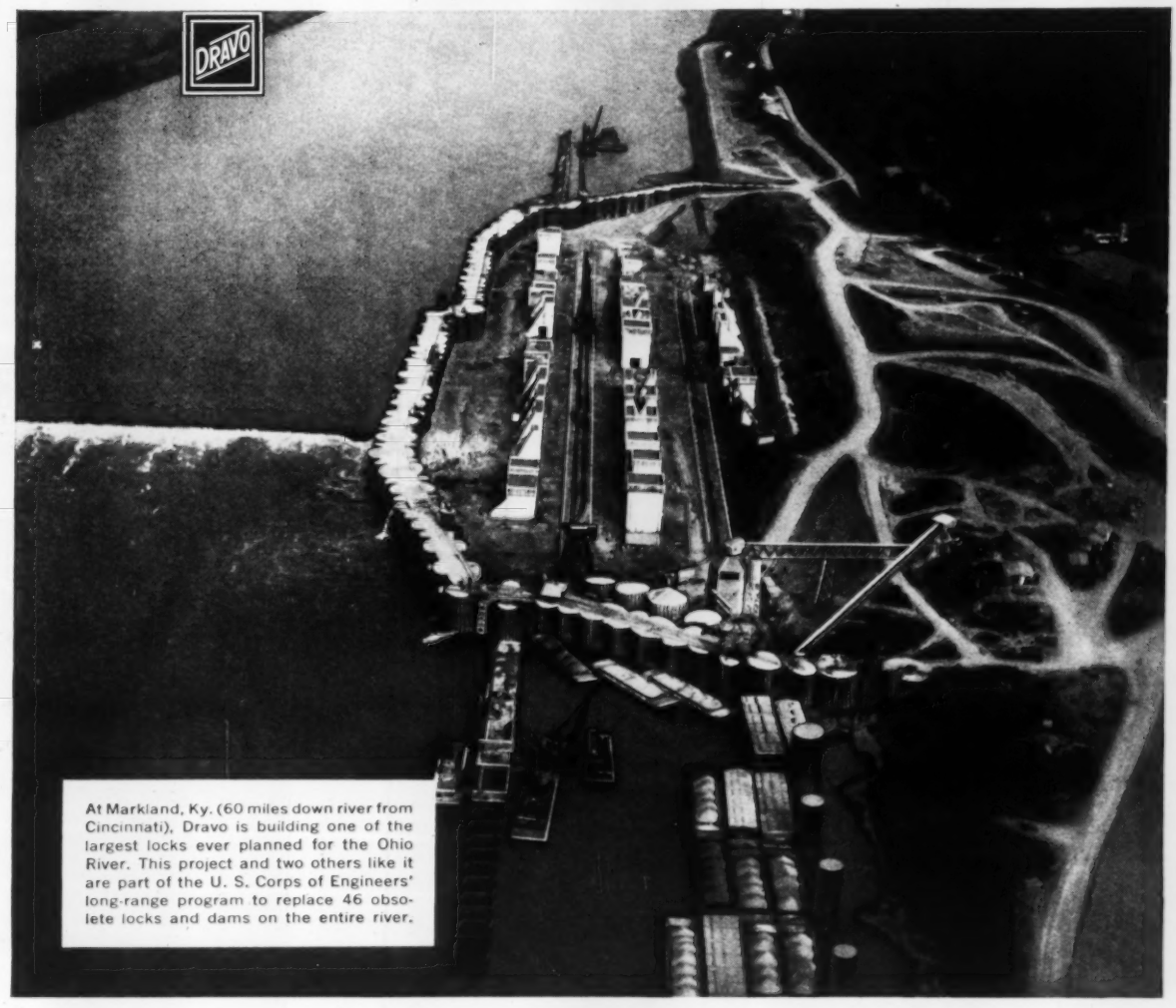
one or more carriers in a train, and can be used for motorization of hand power cranes and carriers. It is especially adaptable for systems that have inclined tracks.

Minimum speeds depend on motor horsepower—maximum is 300 fpm. The tractor is recommended for floor-controlled carriers or cranes and automatic dispatch units. *Write*: Tramrail Div., Cleveland Crane & Engineering Co., Wickliffe, Ohio.

Automatic Checkweighing

A line of Selectrol automatic checkweighing machines can prove weight accuracies in the range of 1 part in 5000 up to 1 part in 20,000. Units are made in capacities from 1 gram up to 100 lb.

Automatic transfer mechanisms place and remove the commodity with a minimum of impact. The



At Markland, Ky. (60 miles down river from Cincinnati), Dravo is building one of the largest locks ever planned for the Ohio River. This project and two others like it are part of the U. S. Corps of Engineers' long-range program to replace 46 obsolete locks and dams on the entire river.

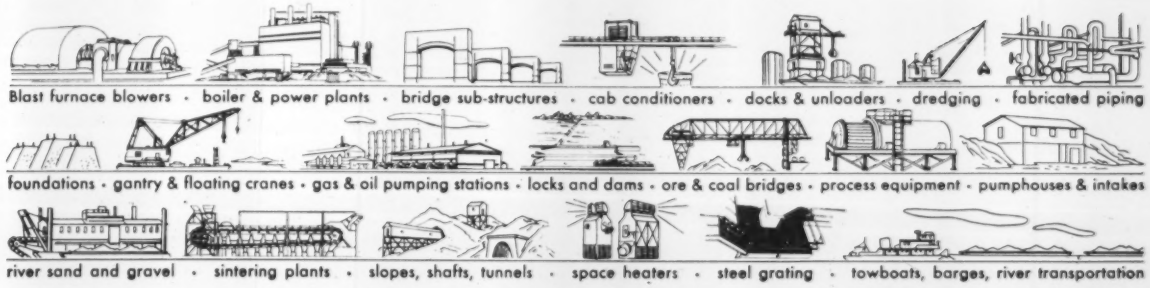
NEW GIANT LOCKS for the busy Ohio

The $18½ million Markland Locks are typical of the special "in or around water" construction jobs handled by Dravo. To date, this job has required: a river cofferdam to seal off a 25-acre site; pumping out 350 million gallons of water from the lake that was formed; excavating a million cubic yards of earth and rock; using nearly a half-million cubic yards of concrete for the locks and guard walls.

Other examples of notable Dravo construction jobs can be found in Lake Superior, where a complete harbor and dock facility for ore boats has been completed . . . in New Orleans, where four main piers for the nation's longest highway cantilever bridge have been built . . . Burnside, La., where special dock and unloading facilities for seagoing vessels, waterway towboats and barges are now under construction.

If your plant expansion or modernization involves difficult construction and foundation problems or any of the products or services listed below—you may be interested in learning more about Dravo's special approach to the needs of industry. Write DRAVO CORPORATION, PITTSBURGH 25, PENNSYLVANIA.

DRAVO
CORPORATION



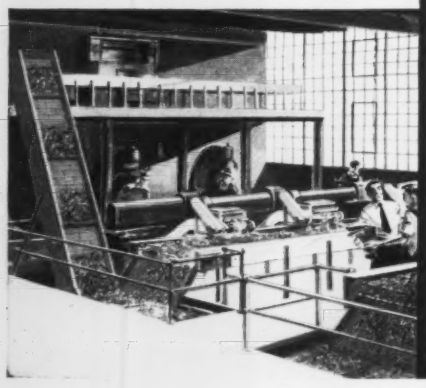
Blast furnace blowers · boiler & power plants · bridge sub-structures · cab conditioners · docks & unloaders · dredging · fabricated piping

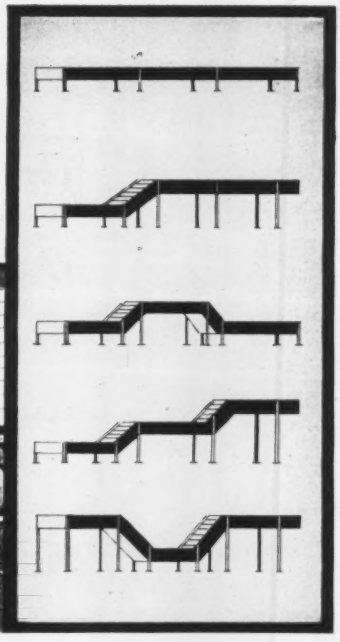
foundations · gantry & floating cranes · gas & oil pumping stations · locks and dams · ore & coal bridges · process equipment · pumphouses & intakes

river sand and gravel · sintering plants · slopes, shafts, tunnels · space heaters · steel grating · towboats, barges, river transportation

MAY-FRAN

CONVEYOR STANDARDIZATION





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The May-Fran conveyor standardization program provides the standard components that can be assembled to form a special or standard conveyor. These same components can be re-arranged at any time to solve production problems in the future.

In addition, standard components mass produced mean conveyor economy right from the beginning.

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Write today for your copy of Bulletin MF-200

7360-MF

MAY-FRAN ENGINEERING, INC.

1725 Clarkstone Road, Cleveland 12, Ohio

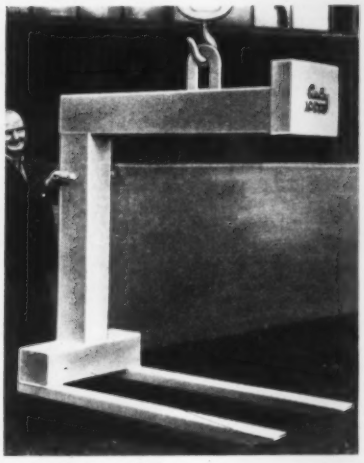
NEW PRODUCTS and equipment

transfer unit causes no accuracy problem since its mechanisms are not connected to the scale lever system.

Model 144 employs a rotary transfer mechanism with one loading, one weighing, and two discharge stations. Model 145 incorporates an in-line "walking deck" transfer mechanism. Both models operate at speeds up to 60 weighings a minute, depending on capacity and accuracy required. *Write:* Exact Weight Scale Co., Columbus, Ohio. *Phone:* Capitol 4-6187

Handles Heavy Materials

This pallet lifter meets the demand for a unit that will handle sheet steel, heavy dies, and large pallets. It makes possible the handling of palletized loads by cranes



or hoists in areas inaccessible to fork trucks, and at lower cost.

Capacity of this unit is 10,000 lb. *Write:* Cady Metal Fabricating Co., 88 Schenk St., North Tonawanda, N. Y. *Phone:* Jackson 4145

Machine Tests Pieces

TensilkuT power equipment machines specimens for tensile, fatigue, and other physical tests. Workpieces from 0.00025 in. foil or 0.500 in. plate can be precision machined from a wide range of metals including aluminum, stainless steel, copper, titanium, uranium, lead, and the superalloys.

An unskilled operator can duplicate specimen configurations within

single stand reversing plate mill

BLAW-KNOX
PLATE MILLS

Blaw-Knox designs and builds a full range of continuous or single stand reversing plate mills for rolling ferrous and non-ferrous slabs. Other Blaw-Knox equipment for the metals industry includes complete rolling mill installations including all auxiliary equipment for ferrous and non-ferrous metals, iron, alloy iron, and steel rolls, Medart cold finishing equipment, carbon and alloy steel castings, fabricated steel plate or cast-weld design weldments, steel plant equipment, and heat and corrosion resisting alloy castings.

BLAW-KNOX

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Foundry and Mill Machinery Division
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creative designing calls for an open mind

Leonardo Da Vinci's design for a horizontal drill press.

Scale model courtesy of IBM

EVEN DA VINCI'S HORIZONTAL DRILL PRESS COULD HAVE BEEN BETTER WITH HELP FROM AN SKF ENGINEER.

Designs improve with help from an SKF engineer because his line covers all four types of ball and roller bearings in many thousands of sizes. In no way are his recommendations confined by his product line. Quite the contrary. He has the kind of flexibility he requires to keep an entirely open mind on any bearing problem. Give your problem to SKF and see.

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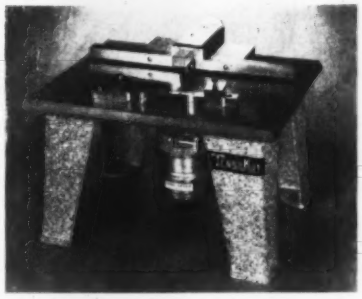
NEW PRODUCTS and equipment



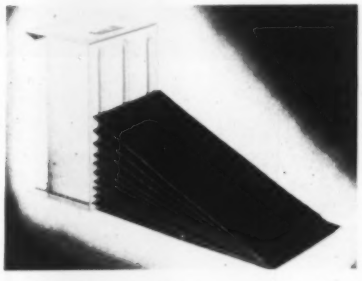
tolerances of ± 0.0005 in. with machined edges free of cold working and requiring no hand finishing.

Machines are available in table or floor models. *Write*: Sieburg Industries Inc., Horse Plain Road, New Britain, Conn. *Phone*: Baldwin 5-2226

Quick Sheet Separation

The Magni-Power Separator offers efficient separation of oily steel sheets and blanks for operator feeding of presses and shears.

Damage to inside elements is eliminated by a stainless steel case



and fully welded construction. Vertical ribs on the magnetic surface offer less friction and give one-point contact for quick and sure separation.

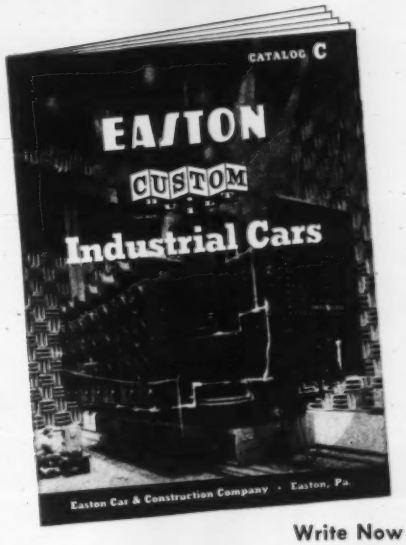
A full line of sizes and strengths is offered. *Write*: Magni-Power Co., Wooster, Ohio. *Phone*: Howard 2-9896

Coil Handled Safely

A motor-driven coil grab provides safe, one-man handling of metal coils. Mansaver 1627-DN is for single rim gripping; 1627-DC handles two coils.

The motor applies the initial grip to prevent primary coil slippage, and the unit's mechanical Wedge-Grip automatically holds the load while

IDEAS for heavy duty materials handling



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EASTON CATALOG C describes 39 different types of heavy duty EASTON industrial cars and trailers, with capacities from 2 to 500 tons, including motorized and automated units, for handling all kinds of loads.

IDEAS inspired by EASTON CATALOG C may save important time and money in your heavy handling operations.

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DEADLINE

June 15, 1958, for your entry in

STEEL

COST CRISIS COMPETITION

The article on Page 100 is an example of what the editors are looking for in their search for companies that have made important cost savings through more efficient use of capital equipment. Does your company qualify? If so, enter the competition—no later than June 15, 1958. Write to the Cost Crisis Editor, STEEL, Penton Bldg., Cleveland 13, Ohio, for your awards kit.

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when you

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Bulk or Fabricated Parts

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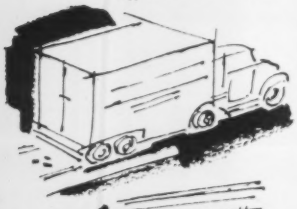
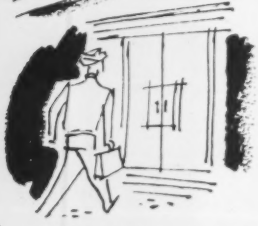


DELIVERIES ARE MADE ON TIME—Orders for the most frequently used types of wire cloth are promptly filled. If we can't supply what you want from our complete stock, we'll schedule our looms to get it to you as soon as possible.



INSTALLATIONS ARE CHECKED—At Cambridge, orders aren't filled and forgotten. Our own sales engineers follow up your order to make sure our product is giving you the best possible service.

QUALITY, OF COURSE—Individual loom operation and countless checks on mesh size and mesh count assure you of highest quality wire cloth when you specify Cambridge.

Let us quote on your bulk or fabricated wire cloth needs. Samples for inspection or test purposes are available upon request. Call your Cambridge FIELD ENGINEER. He's listed in the phone book under "Wire Cloth." Or, write direct for FREE 94-PAGE CATALOG and stock list giving full range of wire cloth available. Describes fabrication facilities and gives useful metallurgical data.

The Cambridge Wire Cloth Co.

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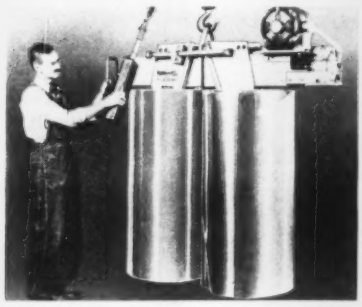
Department J, Cambridge 5, Maryland

OFFICES IN PRINCIPAL INDUSTRIAL CITIES

NEW PRODUCTS and equipment



in midair. This device also prevents the load from being released should power fail.

Coil edges are protected from damage, because it is not necessary to rest the device on the coil to release it. *Write*: Mansaver Industries Inc., New Haven, Conn. *Phone*: Spruce 7-6463

Mast Loads and Stacks

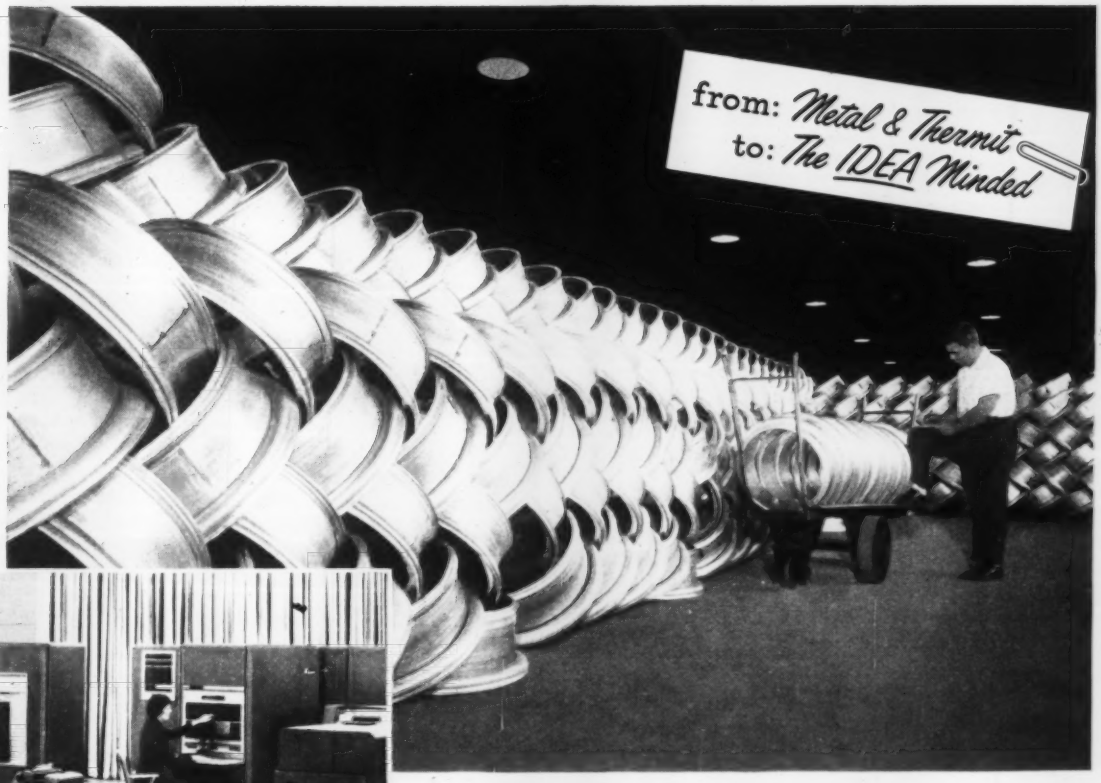
A high mast, developed for all Hustler Pug electric lift trucks, extends to a maximum height of 135½ in. for stacking.

The mast can be brought down to a height of 69 in. to permit work

in production areas. It can also be used for loading highway trucks. The unit is composed of three telescoping sections. *Write*: Hustler Corp., 17515 Elm St., Willoughby, Ohio. *Phone*: Whitehall 2-1757

Two Generators in One

A dual frequency generator has been added to a line of high frequency induction heating units. It



Dense copper deposit helps make a "brain" bright

Since a good memory is vital to computers, IBM plates memory cylinders with the Unichrome Pyrophosphate Copper Process. The deposit from this bath shows an exceptionally smooth, dense deposit of uniform structure.

For the same reason, electronics manufacturers use it in printed circuits. Metallurgists specify it for masking or "stop off" work in nitriding and carburizing operations, since it makes a more impervious shield with thinner deposits. Send for data on M&T's complete line of copper plating processes.

Only 70¢ worth of material protects all these rims

Zinc plated truck wheel rims are chromate treated with a Unichrome Dip Compound at CLEVELAND WELDING DIVISION, AMERICAN MACHINE & FOUNDRY COMPANY. A mere 70¢ worth of this material in solution was sufficient to treat all the rims visible in the picture above for extra corrosion resistance and a better base for paint.

Metal & Thermit offers one of the widest lines of chromating materials now available. Send for handy "Pick-a-Dip" chart.

Plastisol seals out corrosion

Unlike plastic sheets, Unichrome "Super 5300" Plastisol poses no seam problems in lining tanks. It sprays on. It therefore protects even sharp bends and complicated shapes. This vinyl compound bakes to a seamless, pore-free coating that maintains a tight "seal" under severely corrosive conditions.

Thicknesses of up to 60 mils per coat can be achieved by spraying . . . in-plant, or at the facilities of applicators in key locations. Send for data.

METAL & THERMIT 1904 1954 50TH YEAR

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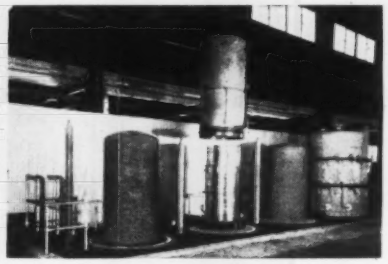
In Canada: Metal & Thermit – United Chromium of Canada, Limited, Rexdale, Ont.

Bell Type FURNACES

Built to Suit Your Plant, Product or Process

Part of an installation of large gas fired three-stack rectangular bell type forced circulation special atmosphere furnaces for annealing strip.



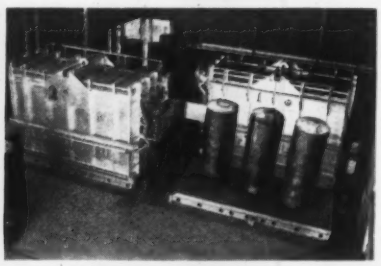
Built right—over 20 years ago—this EF installation is still in operation, daily—and producing first class work.

Single or multi-stack—circular, rectangular or square types—upright, elevator or partial pits—gas fired, oil fired or electric—correctly designed, built and installed, ready to produce.

Backed by over 40 years of practical furnace building experience, EF furnaces incorporate all the advantages of all bell type designs, for processing strip, wire, rod and other ferrous and non-ferrous products.

EF bell type furnaces installed over 20 years ago are still in service daily, producing first class work. There's no substitute for experience.

Part of another installation of large EF gas fired three-stack rectangular bell type forced circulation special atmosphere furnaces for annealing steel strip.



EF gas fired special atmosphere rectangular bell type strip annealers with individually controlled forced circulation three-stack bases each with capacity of 135,000 lbs. per charge.

Submit your production furnace problems to experienced EF engineers—it pays.

BULLETIN No. 461

shows typical installations of EF Gas-fired, Oil-fired and Electric Furnaces.

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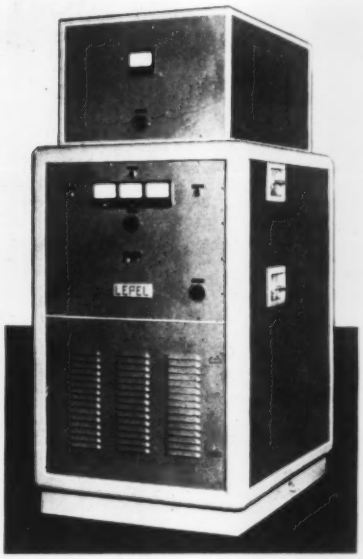
NEW PRODUCTS and equipment



is rated at 10 kw of output power.

The lower frequency range is 250 to 600 kilocycles; the higher, about 2 to 5 megacycles.

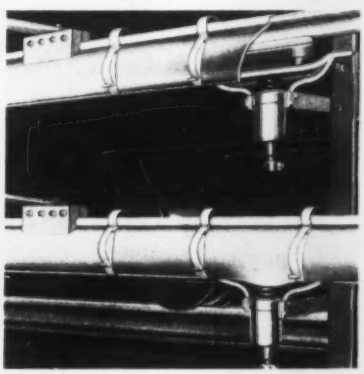
The unit provides flexibility in heating operation where frequency may be important, without changing the basic features of the standard generator or purchasing two separate generators.

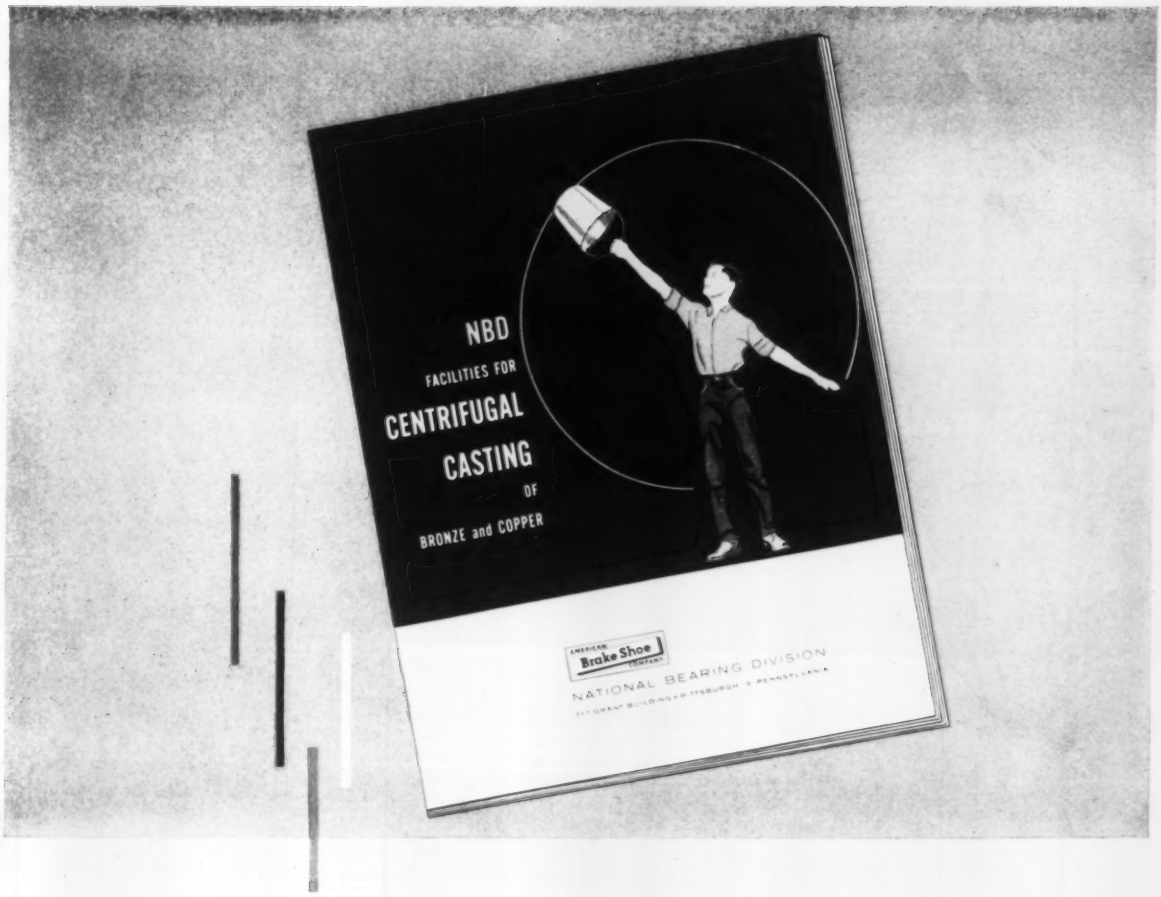
Megacycle frequencies are ideal for heating thin parts, semiconductor materials, and for superficial heating. *Write*: Lepel High Frequency Laboratories Inc., Woodside, N. Y.

Trolley System Safe

An electric trolley system of different design provides a high degree of safety and ends the need for maintenance caused by foreign matter coming in contact with any part of the system.

The U-S Safety Trolley system





HOW NBD CENTRIFUGAL CASTING CAN CUT COSTS OF BRONZE PARTS

Engineers know that centrifugal castings have a man-sized strength and soundness hard to match.

This means that in many cases you can design a big part smaller . . . a heavy part lighter . . . and you still get the casting strength you want.

Cost saving can be substantial.

Find out now where you can use NBD centrifugal bronze castings and save. We'll help you with the engineering.

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FIRST BASIC OXYGEN FURNACES

at Jones & Laughlin use Research-Cottrell Precipitators

Industry's toughest gas cleaning problem. That's how they refer to the job of removing dust from basic oxygen furnace gases. Briefly, here's what's involved:

34 pounds of dust for each ton of blast furnace hot metal. 90% of this dust is less than 1 micron. Dust concentration is about 11 grains per cubic foot. Over 98% guaranteed collection efficiency.

The Research-Cottrell precipitators at Jones & Laughlin Steel Corporation's Aliquippa, Pa., plant are designed to process from 250,000 cfm to 400,000 cfm of the above gases at conditions developing a collection efficiency of 98%.

The diagram and text on the next page explain briefly how Research-Cottrell precipitators fit into the basic oxygen steel making process. If you would like more information on how to insure high dust collection efficiencies—at a low cost—get in touch with your nearest Research-Cottrell representative. Whether your problem involves iron blast furnace, ferro manganese blast furnace, open hearth, sintering or other steel industry applications, you can count on an economical solution to your problems at Research-Cottrell.

Research-Cottrell

RESEARCH-COTTRELL, INC. Main Office and Plant: Bound Brook, N. J. • 405 Lexington Ave., New York 17, N. Y. • Grant Building, Pittsburgh 19, Pa. • 228 N. La Salle St., Chicago 1, Ill. • 58 Sutter Street, San Francisco 4, Calif. • Research-Cottrell (Canada) Ltd., 33 Bloor Street East, Toronto 5, Ontario.

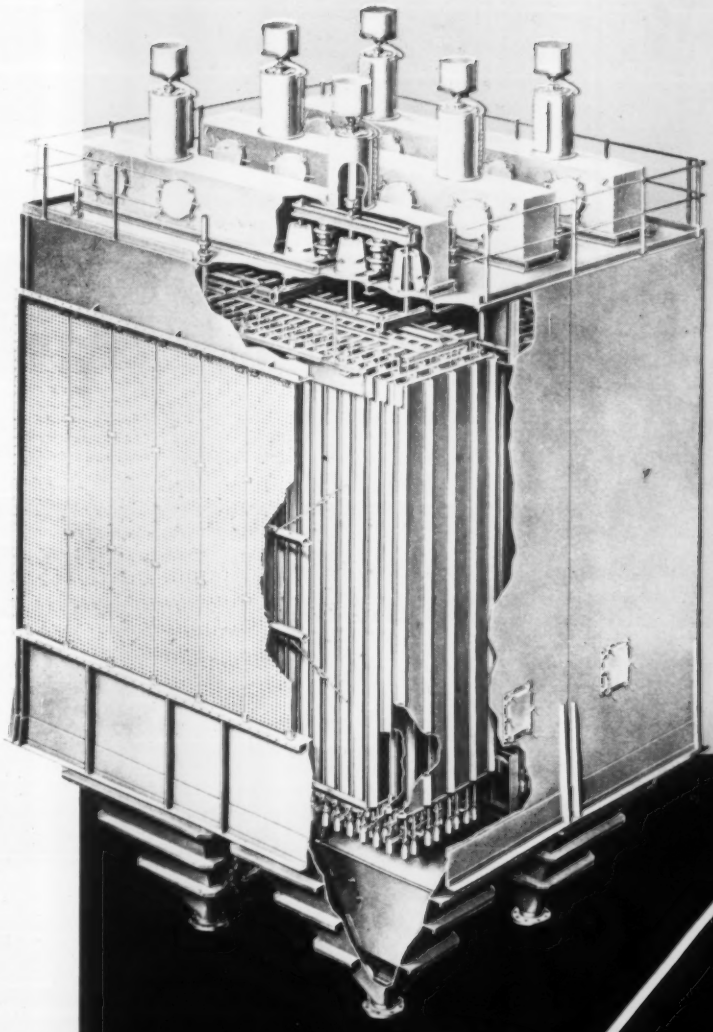
How Research-Cottrell Gets over 98% Collection Efficiency

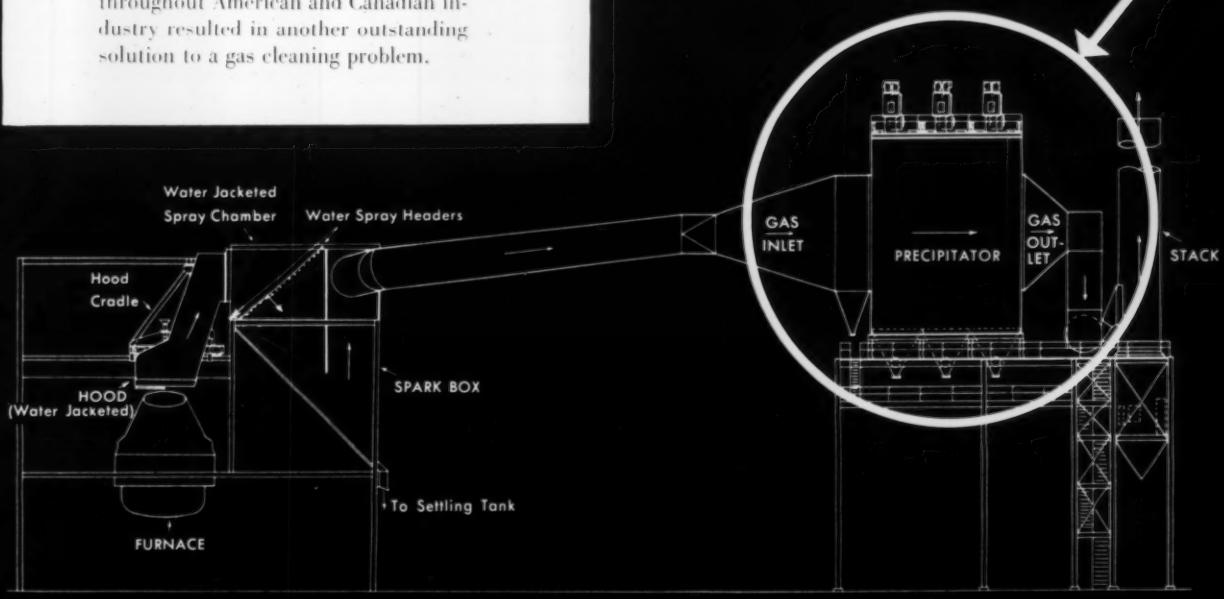
First, the gases generated at the furnace are burned with excess air and cooled in a water-jacketed hood and chamber with water sprays. The water spray header acts as a baffle for the gas, causing the larger particles to fall into the "spark box" and from there to a settling tank.

The gas is further cooled by radiation in the flue connecting the spray chamber to the "gas inlet." The purpose of the "gas inlet" section is to decrease the gas flow, allowing still more of the large particles to drop into the "expansion chamber" before entering the precipitator.

In order to achieve such high collection efficiencies, collecting plates *must be kept clean*. This means that rapping is a highly critical factor in the overall efficiency. Both MI Rappers used for collecting electrodes and the high tension syntron vibrators are operated continuously and automatically. They can be varied in cycle and intensity of rapping time to maintain high efficiencies under changing conditions.

As in all new applications pioneered by Research-Cottrell, the experience of over 2000 precipitator installations throughout American and Canadian industry resulted in another outstanding solution to a gas cleaning problem.





J&L GAS CLEANING SYSTEM DESIGNED BY KAISER ENGINEERS
EMPLOYING COTTRELL ELECTRICAL PRECIPITATION

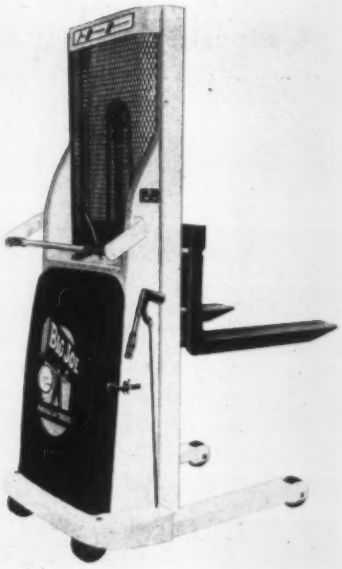
carries high amperages required by heavy duty cranes and similar equipment. A flexible sheath covers both bus and shoe—Koroseal for inside applications, and Neoprene and nylon for outside.

This copper-to-copper setup maintains total area of contact between conductor and collector. This, combined with the sheath, allows continuous operation in the presence of dirt, grease, or acid fumes. It is self-de-icing on exterior installations.

Systems are available for operation on 110 to 600 volts; collectors range from 70 to 1125 amperes. *Write*: U-S Electric Mfg. Co., 1068 Banksville Rd., Pittsburgh 16, Pa.

New Truck Fills Need

A low cost, battery operated hydraulic fork and platform lift truck, the 299, is equipped with a 12-volt industrial battery and a self-contained battery charger.



The unit was introduced to satisfy demand for a machine suited for handling loads up to 1000 lb. It lifts loads to a height of 57 in. Other models of the series will have lifting heights of 67, 77, and 87 in.

The company also offers trucks in telescoping lift, outdoor, and pedal hydraulic styles. *Write*: Big Joe Mfg. Co., Wisconsin Dells, Wis.

Rectifier Efficiency High

High efficiency, no aging, ability to operate in ambient temperatures over 200° F, and high voltage rating are among advantages of a new silicon plating rectifier.

Designed for easy accessibility, the unit can be adapted for a variety of controls, depending upon the application. It includes a Class B transformer, is equipped with a coil for each cell, has individual fusing with pilot light failure indicator, single phase protection, and blower type fan. *Write*: Equipment Div., Wagner Brothers Inc., 7800 Dix Rd., Detroit, Mich. *Phone*: Tulsa 3-0100

Machine Cycle Variable

A vertical drilling and boring machine has a 30 or 60 hp power unit lubricated by an internal pressure system.

The standard automatic cycle consists of rapid advance down, feed, and rapid return. Positive actuation of feed stroke is provided by a cam-operated valve. Variations of cycle are available. Length of

WORLD'S FINEST DC WELDERS

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MODEL SRH

Only 30¼" high, the new Gold Star SRH combines compactness with the sensational improvements introduced by the Miller Gold Star line. These include wholly new transformers, completely sealed semimetallic rectifiers and weld stabilized circuits. Where stacking or paralleling adaptability plus the finest dc performance ever achieved is indicated, the Gold Star SRH is the unequaled answer. Available in three models with 60% duty cycle ratings of 200, 300 and 400 amperes.

MODEL SR

GOLD STAR DC-SR

The best welding current **ever** produced is delivered here. You **get** maximum arc stability for sounder, denser welds with **all** electrodes in **all** positions. And you get more of them in less time! This revolutionary performance coming from a machine of record-breaking dependability (see January welding magazines), has led industry and individuals to say of the Miller Gold Star SR-DC: "The SR gives **perfect** dc welding current; Easiest arc starting — bar none; Smoothest arc I ever used, and quiet to boot."

Available in both duplex and single models with ampere range from 200 to 1200. Complete complement of control equipment gives the Gold Star SR unlimited flexibility, plus milestone performance and unmatched dependability.

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ANOTHER INDUCTO INSTALLATION...

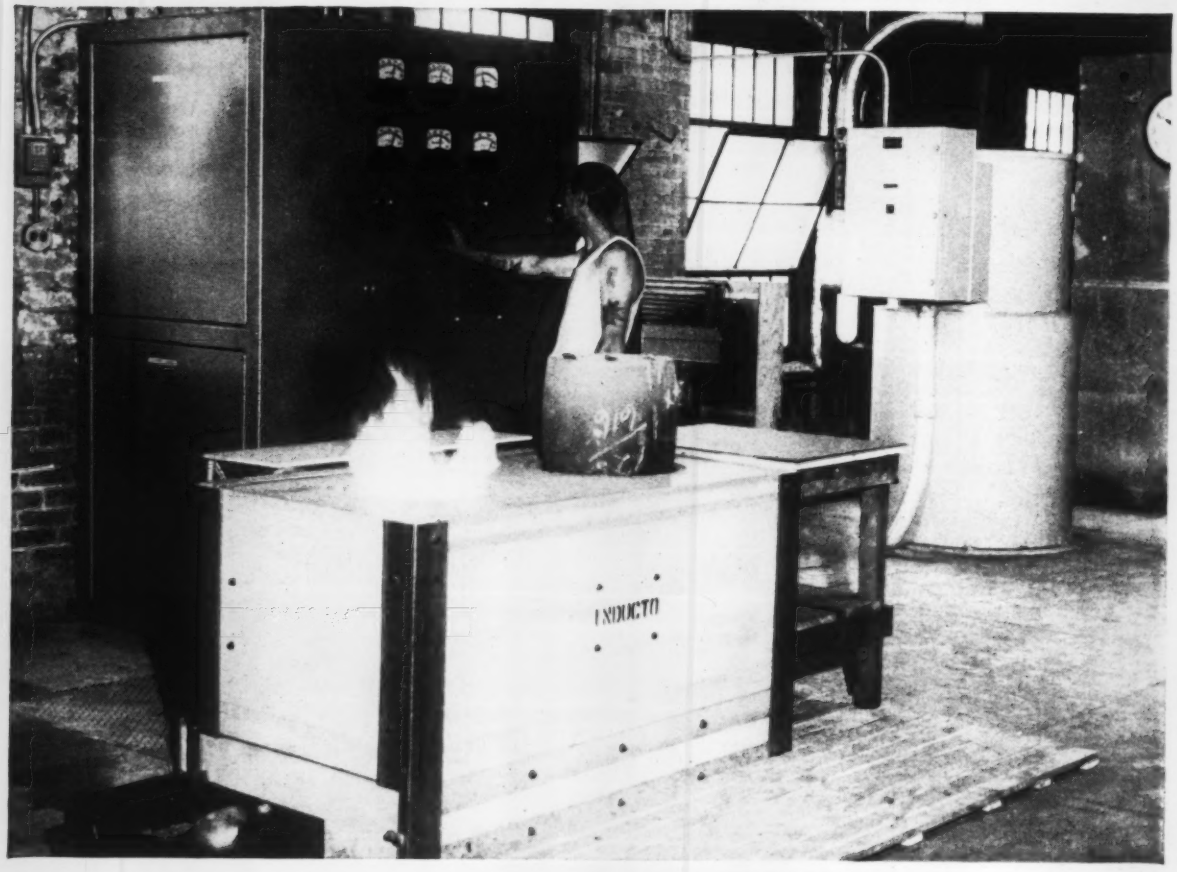

PHOTO COURTESY OF BUSHINGS, INC., PHILA. 32, PA.

The Foundry and the Feather Duster

Shortly after Bushings Incorporated, a Philadelphia manufacturer of cast bronze bushings and bearings, replaced four oil-fired furnaces with an INDUCTO Push-Out induction furnace, the management received a strange request . . . the foundrymen wanted a feather duster. They liked the INDUCTO furnace and control so much, and were so pleased with the cooler and cleaner foundry, that they wanted a feather duster to keep the equipment clean.

And the management was pleased too! For in addition to happier and more productive employees, they gained other benefits. The higher melting speeds and precision control of the INDUCTO Push-Out furnace helped reduce metal losses. In addition, it became possible to reclaim metal from melts and machining. Production time was saved in the handling of crucibles and the transferring of melts. In fact, the one INDUCTO Push-Out furnace provided as many melts in six hours as the four oil-fired furnaces did in eight.

Why not learn for yourself how INDUCTO furnaces and precision control can help modernize your foundry and save production dollars? Write today for more complete details.

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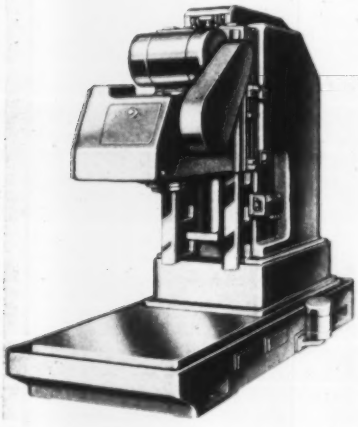
NEW PRODUCTS and equipment



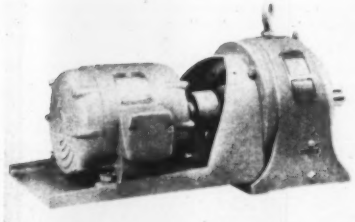
feed stroke is varied by positioning of cams mounted to the slide.

The vertical slide is 26 in. wide by 48 in. long. Stroke of 15 or 30 in. is optional. *Write*: Motch & Merryweather Machinery Co., 1250 E. 222nd St., Cleveland 17, Ohio. *Phone*: Ivanhoe 6-3600

Reducer Cuts Downtime

A motorized gear reducer unit, called Line-A-Spede, is powered by standard NEMA frame motors that are shelf-mounted to the reducer.

Double, triple, and quadruple reductions, with ratios up to 1487 to 1, are available for motor ratings of

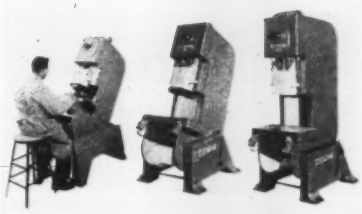


1 to 74 hp. Units are made for horizontal, vertical, flange, incline, sidewall, or ceiling mounting.

The gear portion is available without motor or mounting shelf. *Write*: Dept. P, Louis Allis Co., 427 E. Stewart St., Milwaukee 1, Wis. *Phone*: Humbolt 1-6000

Press Drive Is Unitized

A line of 22, 32, and 45 ton open back inclinable presses, called Torc-Pac O.B.Is, features an air-friction



clutch and brake as standard equipment.

Clutch and brake plates are long-wearing sintered bronze. They operate in an oil bath. This bath serves an important function in addition to lubrication, for much of the pickup load is accomplished before a metal-to-metal contact of the plates takes place. Clutch and brake never require adjustment.

Presses have an integral drive unit which consists of all working members of the drive and slide. The drive can be detached from the press as a single unit by removing six bolts. *Write*: Clearing Machine Corp., division of U. S. Industries Inc., 6201 W. 63rd St., Chicago 38. Ill. *Phone*: Portsmouth 7-8700

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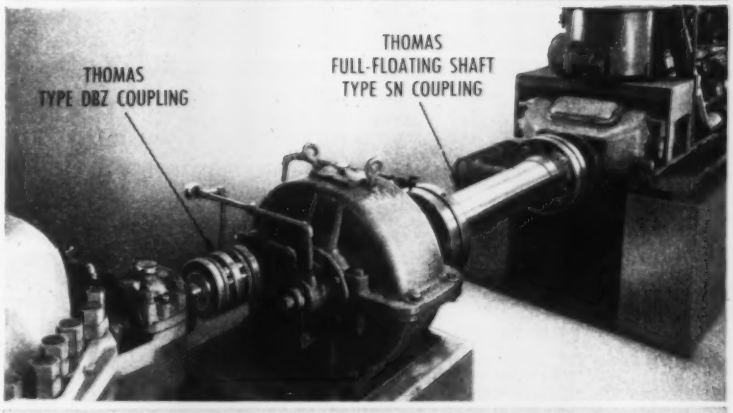
THOMAS ALL METAL FLEXIBLE COUPLINGS



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They will protect your equipment and extend the life of your machines.
Properly installed and operated within rated conditions, Thomas Flexible Couplings should last a lifetime.

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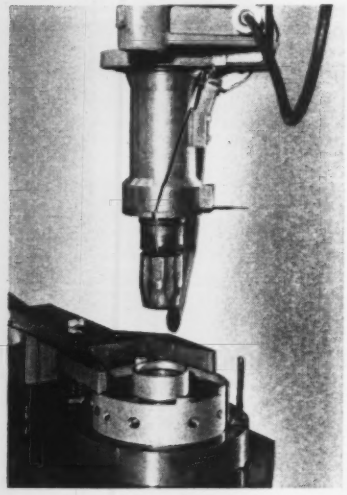
3 Smooth Continuous Drive with Constant Rotational Velocity
4 Visual Inspection While in Operation
5 Original Balance for Life
6 No Lubrication
7 No Wearing Parts
8 No Maintenance

Write for Engineering Catalog 51A

THOMAS FLEXIBLE COUPLING COMPANY
WARREN, PENNSYLVANIA, U.S.A.

Why MICROHONING
Provides Lower Cost — Consistent Accuracy — Maximum Production

Success of modern mass production invariably depends on complete interchangeability of parts. Thus, processing procedures that provide consistent accuracy at high production rates are required—Microhoning machines having automatic Microsize gaging assure "all parts are created equal" at a faster rate and at lower cost.



The variety of work piece and processing factors that influence automatic sizing are too diversified to be encompassed by a single gaging technique. Thousands of Microhoning applications have verified this fact. Therefore, through its continuing program of research and development, Micromatic has designed several automatic gaging devices—each provides advantages for specific types of use. Typical of features to be found in Microsize controls are the following two examples:

EXPANDING GAGE MICROSIZE

1 Gage wear held to a minimum—gage enters work collapsed.
2 Fine size adjustment through a range of .010" on diam.
3 Geometric accuracy—free-floating tool and/or part.
4 Diametric accuracy—.0003" or less.
5 No limit on maximum bore diameter to be gaged.

GAGE RING MICROSIZE

1 Simple to operate and maintain.
2 Geometric accuracy—free-floating tool and/or part.
3 Diametric accuracy—.0003" or less.
4 Gages bores from .120" to 4" diam.
5 Only honing tool enters bore—nothing to mar finish of soft surfaces.

The real answer to efficient automatic gaging is found in applying the right gaging technique to each job—it is here that Micromatic "know-how" can be of vital service to you.

Learn why Microhoning will give efficient stock removal, closer tolerances, accurate alignment and functional surfaces.

☐ Please have a Micromatic Field Engineer call.
☐ Please send Micromatic literature and case histories.

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NEW Literature

Write directly to the company for a copy

Strip Roll Selection

"Suggestions on Rolls for Best Strip Rolling Practice," a special issue of the *Fenn Engineering News*, contains basic information on types and uses. Included are selection tips, answers to roll questions, and maintenance advice. Fenn Mfg. Co., Newington, Conn.

Submerged Arc Welding

Folder 5205.1 outlines the mechanized Squirt Welder, ML-3, which provides the precision of automatic welding with the flexibility of manual. Lincoln Electric Co., Cleveland 17, Ohio.

Magnets

Catalog No. PR-19 describes stock permanent magnets, magnetizers, and demagnetizers. Listed are over 70 cast Alnico V magnets and over 30 sintered Alnico II magnets available for immediate shipment in experimental quantities. Indiana Steel Products Co., Valparaiso, Ind.

Steel Handling

How handling structural steel products with straddle carriers has reduced costs is outlined in Job Study No. G-102. The report is on use of a 60,000-lb carrier to transport bulky loads of steel up to 110 ft in length. Towmotor Corp., Cleveland 10, Ohio.

Beryllium Hazards

"Plain Talk on Beryllium" is a 12-page booklet on the industrial hygiene aspects of beryllium metal, oxide, alloys, and other products. During extraction and fabrication, some forms of the metal constitute a health hazard when improperly handled. This booklet is issued to counteract many general statements found in nonprofessional publications. Beryllium Corp., P. O. 1462, Reading, Pa.

Electric Fork Truck

Described in Bulletin 1319 is electric fork truck FTA-30. Dimensions, speeds, details of design and construction of this 3000-lb capacity truck are provided. Baker Industrial Trucks, division of Otis Elevator Co., Cleveland 2, Ohio.

Investment Casting

A condensed data file for designers and users of investment castings contains charts showing comparative tolerances, sections, finishes, tooling time, and relative costs of all casting processes. Rode Inc., 3 Green St., Woburn, Mass.

Electric Power Drives

A 64-page catalog simplifies the selection of electric power drives through the use of color coding and a numeral system. Contained are prices, modifications,

and dimensions on: Gage motors, gear motors, speed reducers, and variable speed drives. Sterling Electric Motors Inc., 5401 Telegraph Rd., Los Angeles 22, Calif.

Chain Hoists

A 4-page bulletin, No. 2367, describing Thor H-1000 air hoists, includes tables on rate of ascent and descent under various load conditions and air pressures. Thor Power Tool Co., Prudential Plaza, Chicago 1, Ill.

Steel Tubing Guide

A steel tubing buyer's guide, Bulletin 12-10, provides characteristics, size ranges, response to fabrication, and the relative cost of seamless and welded, mechanical and structural, carbon steel tubing. Condensed information is given on stainless steel and aluminum tubing and pipe, and plastic pipe. Joseph T. Ryerson & Son Inc., Box 8000-A, Chicago 80, Ill.

Crane Hook Blocks

A bulletin describes the complete line of Max-Lift crane hook blocks and includes data on number of sheaves, sheave diameter, rope diameter, type and number of bearings, and weights and dimensions for each size from 5 to 35 ton capacity. Data are given on a 35-ton block that is only 39¾ in. high. Upson-Walton Co., 12535 Elmwood Ave., Cleveland 11, Ohio.

Combination Tester

A data sheet, TT-58, describes the Model TT TwinTester. This combination Rockwell and Rockwell Superficial hardness tester is for use in laboratories, tool departments, and job lot shops. Operating features, standard equipment, and optional accessories are listed. American Chain & Cable Co. Inc., 230 Park Ave., New York 17, N. Y.

Refractory Castables

Information contained in the 24-page "Mex-R-Co Refractory Castables" includes: A table of proper applications for 15 specialized castable refractory cements, information on anchoring castables, a chart for estimating quantity, mixing and placing instructions, and suggestions for pneumatic placement of castables. Mexico Refractories Co., Mexico, Mo.

Deep Throat Presses

Bulletin No. 5 illustrates a line of deep throat, high speed presses. Dimensions and capacities of eight bench and floor model presses are given. Units range in capacity from 4 to 60 tons with speeds of 90 to 195 strokes a minute. Design features include rolling key clutch, stress relieved construction, and extra long gibs. E. W. Bliss Co., Canton, Ohio.

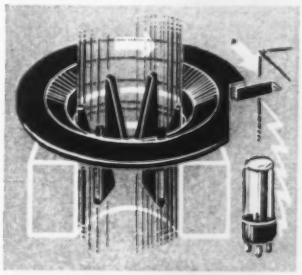
Immersible Motor

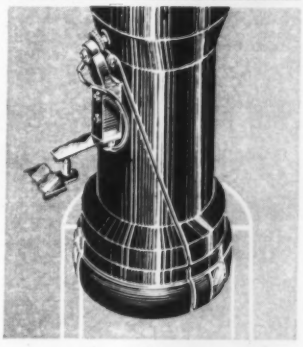
A 4-page bulletin, No. 2300, describes a motor used for submerged operation in water, chemicals, abrasive industrial oils, or sewage sumps. Louis Allis Co., 427 E. Stewart St., Milwaukee 1, Wis.

How MICROHONING Provides Lower Cost — Consistent Accuracy — Maximum Production

Inherent characteristics of the Microhoning process are: rapid stock removal —generation of geometric and dimensional accuracy—ability to produce any desired functional surface finish. By using automatic Microsize controls, Microhoning's economies for precision processing can be fully utilized.

Today, there are several different types of automatic Microsize gages. The type best suited for individual applications can only be determined by considering the workpiece and processing factors. How automatic cycling of Microhoning machines is accomplished by using Microsize gages is indicated by the following typical examples:





GAGE RING MICROSIZE

The gage ring, which is mounted above the workpiece, has an I.D. equal to required bore diameter. When bore has been Microhoned to size, plastic tabs on the abrasive sticks contact I.D. of gage ring causing it to turn. This movement triggers an air switch or an electronic pickup to initiate the ending of Microhoning cycle. Production-proved diametric accuracy on bores from .120" to 4" in diameter is .0003" or less.

EXPANDING GAGE MICROSIZE

This gage reciprocates in synchronization with the Microhoning tool but is not attached to it. Entering the bore on every downstroke of the tool, the gage expands only at the bottom of each stroke. When gage expands to required bore diameter, two preset electrical contacts meet and initiate the ending of Microhoning cycle. There is no limit on maximum bore diameter that can be gaged—diametric accuracy held to .0003" or less.

To most efficiently meet each automatic sizing requirement, Micromatic employs a wealth of experience in the use of air, liquid, electronic and mechanical controls.

☐ Please send me your movie "Progress in Precision" in time for showing on _____ (date).
☐ Please have a Micromatic Field Engineer call.
☐ Please send Microhoning literature and case histories.

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Acme-Newport's unusual flexibility of operation permits this special service for steel users pinched by short supplies. Rush orders for spot requirements are distinctly labeled with a bright red circle, giving them right of way through every department.

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Market Outlook

Output Rises for Fourth Week

RECOVERY in the steel industry is gaining momentum. Last week, the operating rate jumped 3 points to 54.5 per cent of capacity—the highest level of production since Mar. 2. Output was about 1,470,000 net tons of steel for ingots and castings.

Only four weeks ago, steelmaking was at its lowest level of the year. Since Apr. 27, the ingot rate has climbed more than 7 points and weekly production has increased by 200,000 tons.

If operations continue at the current rate, May production will reach 6 million tons, easily topping last month's 5.53 million. Steelmen expect further improvement in June.

WIDESPREAD GAINS— All but three districts reported better production last week. The biggest gains were scored in the Cincinnati, Detroit, and Buffalo areas. A southern Ohio mill is running at 70 per cent of capacity, its best rate in several months. At Detroit, Great Lakes Steel Corp. pushed operations up 10 points and Ford Motor Co. scheduled a 6.6 point rise. At Buffalo, Bethlehem Steel Co. relighted another open hearth. the fifth it has returned to production in the last two weeks.

REASONS FOR PICKUP— Industry observers attribute higher production to gains in demand (although less than seasonal) for construction products and scattered improvements in miscellaneous buying.

They also point out that inventories have been trimmed from 19 million tons on Jan. 1 to 13 million tons, a level at which some replacement buying can be expected. They say, too, that some consumers are hedging against a possible price increase on July 1.

JULY SLOWDOWN?— June production will top May figures by 2 or 3 per cent, some market analysts believe. They're less optimistic about July because: 1. Automakers will begin shutdowns for model changeovers. 2. Vacations will slow consumption in other industries. 3. Customers who bought heavily in June as a hedge against higher prices will be out of the market during July. If steelmaking slips, chances are it won't fall to the April level.

AUTOMAKERS CLOSE EARLY— It's believed that Detroit's Big Three will close their plants from one to three months earlier than usual to switch to '59 models. General Motors will probably start closing its assembly plants in July. Chrysler will go down in late July or early August, and Ford will follow in September.

Despite reports that new car output will start with a bang, Detroit steelmakers think initial production rates won't be much greater than they are now. Big steel orders will come early this year, but releases will be staggered as automakers keep tabs on the cleanup of '58 models.

BETS ON FOURTH QUARTER— Charles M. White, Republic Steel Corp.'s chairman, expects the third quarter to bring little change in steelmaking operations. Reason: The inventory correction in many industries will be continuing. "However," he adds, "the combination of a much improved inventory situation and normal seasonal patterns should result in better production in the fourth quarter."

MEMPHIS DECISION HURTS— Last November, a federal court ruled that the Federal Power Commission can't approve higher rates for natural gas transmission companies unless the increases are acceptable to the utilities that buy the gas. The decision delayed gas expansion programs costing Youngstown Sheet & Tube Co. a year's production of pipe, says J. L. Mauthe, chairman. Republic Steel Corp. shut its Gadsden, Ala., mill for two months, reopened it recently when line pipe orders were reinstated.

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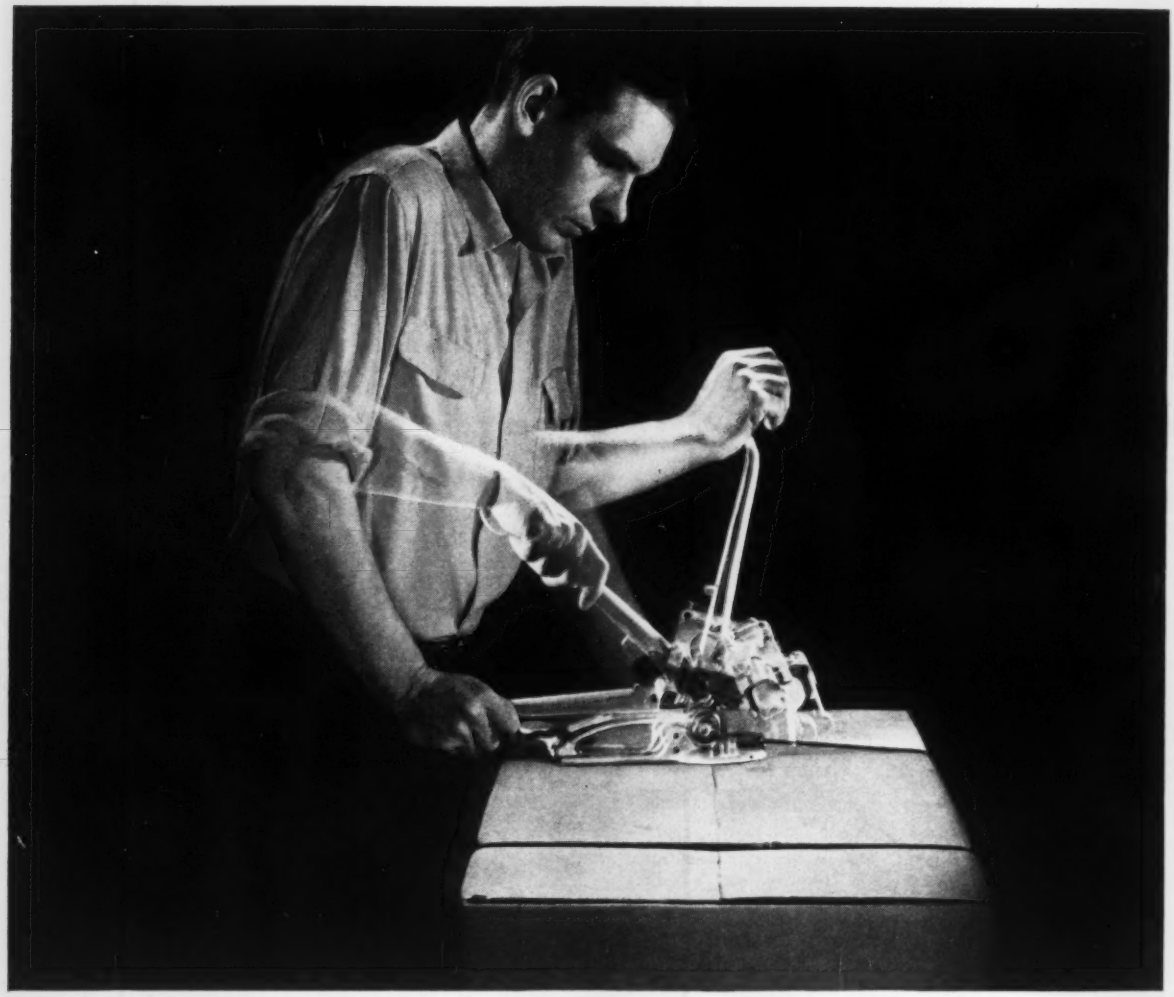

10 reasons why the Signode SFC is the savingest tool for strapping

$ With the SFC, one handle does the tensioning and the sealing. That's why one hand is free to align the straps and move the package. The SFC is the only one-hand seal feed tool. But that's not all.

$ You can put a cartridge of 50 Signode seals into the SFC magazine in a few seconds...as quickly as placing a loose seal on a strap. No seals wasted.

$ The SFC is the simplest of all seal feed tools to learn about and to operate. Even our advertising agency man learned to use it in about 7 minutes.

$ The SFC will not operate unless the strap is properly aligned. In most seal feed tools misalignment wastes strap. It can't happen with the SFC.

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$ Light weight lets you use the SFC as easily on the sides of the package as on the top. (Anybody know of an overhead strapping application?)

$ The short base and centered balance of the SFC makes it easy to use on small packages, on cleats or other narrow surfaces, or on the edge of a box.

$ The SFC can be used with the strap dispenser either in front or behind the operator—whichever fits your layout best.

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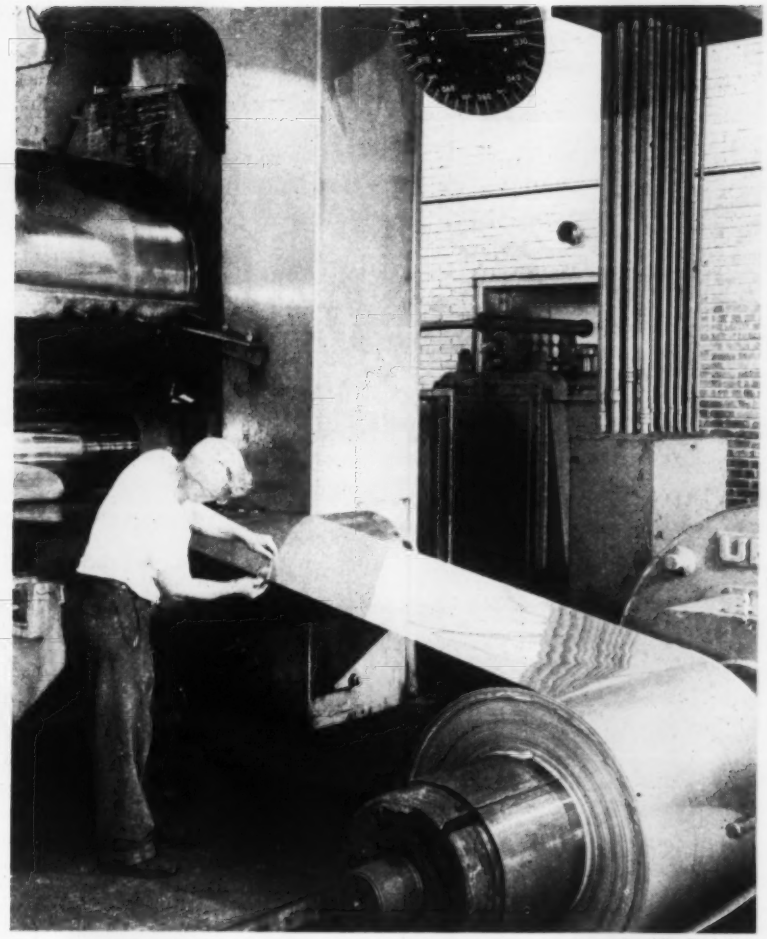


Republic Steel Corp.

Stainless Upturn Starting

Producers see early introduction of 1959 model autos as chief factor behind better sales outlook. Inventories are getting low. Prices will go up after July 1

STAINLESS STEEL producers are viewing the current slight uptrend in orders with a mixture of optimism and caution. They would like to see the trend strengthen, but until the automotive industry declares itself on use in 1959 models, the steelmen aren't throwing any parties to celebrate the recovery.

While you will find some disagreement among individual producers, most of them feel that the worst is over. Within the last four to six weeks, the pace of incoming orders has quickened, although the majority of them have been on the small side for quick delivery. "We're getting some of the most fantastic orders today," exclaims one sales manager. "It's a sure indication that inventories are near rock bottom."

The Clues — If that's the case, then one of the two main factors in the downturn in sales can be expected to turn up any time now. The second cause, automotive production, is less certain. Most producers tied closely to that industry say that inquiries point to early introduction of new models. Orders for test production runs are in now. But design is changing so fast that nobody can tell how much stainless is going to be used per car.

One report from Detroit indicates that a medium-priced car producer has changed a single trim part three times. First it was stainless, then aluminum, then stainless again. As of mid-April, the part was scrapped altogether, even though the tooling was completed.

Heavier Parts—Chances are good that the average use per car will increase a little, regardless of such changes. As one stainless producer puts it: "Often that which is thought of as competition between the two metals works to our mutual benefit. On Fords, for example, stainless strips are used to frame a gold anodized aluminum panel." Another producer feels that poundage per car will increase because auto producers are using heavier parts next year. Along with anticipated greater production of '59s, this could mean a pretty good year for stainless, starting in the fall.

While there is little activity from any of the stainless markets, few have been as lifeless as autodom. Captive markets, such as commercial kitchens and dairy and food machinery, are continuing to show long term growth. Appliance makers are turning to stainless more each year, but this is not yet a major market. Construction—mainly in curtain walls—is the fastest growing use, according to one producer. But it is still in its infancy.

Brighter Kitchens—One producer is enthusiastic about the future of stainless steel sinks. "There is stainless—20 lb of it—that can be put in every home at reasonable cost with great benefit to the housewife," he beams. "The replacement market is practically unlimited, and it is already becoming a factor. The new home market is gaining, too."

Aircraft use is down right now, but there are indications that it will gain strength within the next six months, both in planes and missiles.

Manufacturers of stainless wire appear to be better off than their counterparts in plates and sheets. Some even claim sales improvements

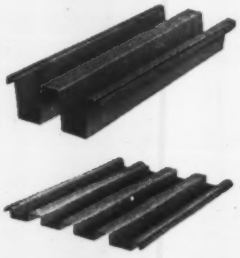
over 1958, and sales are on the increase.

Price Outlook—But the industry as a whole is operating at about 50 per cent of its capacity. This has caused some price shading on such things as packing and quantity extras, but the general price level has remained firm. Producers declare that they would like to hold at this level throughout the year, but they don't see how this will be possible after the new labor contract becomes effective on July 1.

(Some steelmakers say that price hedging has played a minor part in the present sales picture. One says it may account for 8 to 10 per cent of the current volume.)

Any increase will widen the price gap between aluminum and stainless (aluminum prices declined 2 cents a pound on Apr. 1), but stainless men feel this will not hurt their competitive position to any great extent. "We feel we have a quality product and that it must be sold on its merits" they say.

steel roof decks and flooring cold rolled up to 200 f.p.m. on this mammoth



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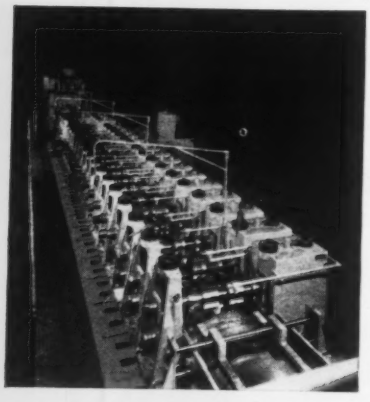

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Stainless Steel . . .

Stainless Steel Prices, Page 165

Auto builders' orders for stainless steel are virtually nil. But other users are buying more actively, orders showing slight increases from week to week. One Detroit area producer says: "It looks like April was our low month, and while the pickup is slow, it will continue to increase."

Specialty steel sellers are searching for the last little run of small lot tonnage that the automakers will require to finish their 1958 model runs. Those should be trickling in through the rest of this month, and salesmen are out digging for the business.

Apparently, there is a lot of over-optimistic promising of quick delivery on those items, and also some price pressure.

Sheets, Strip . . .

Sheet & Strip Prices, Pages 162 & 163

It looks like the automakers will place fair-sized orders for sheets and other steel products for their 1959 models in late June and early July. Releases, though, may be staggered until cleanup of 1958 model cars is assured. If all goes well, a rush of releases for late third quarter and early fourth quarter deliveries may flood the mills.

That about sums up thinking in the sheet market on automotive demand prospects. Current auto needs are relatively small. Only a trickle of orders is reported, but May volume will be slightly above April's, and still larger tonnage may come out for June shipment.

Last week, it was reported that Bethlehem's mill in the Buffalo area is getting a fair amount of business from foreign automobile manufacturers. It is said the mill currently is busier on sheet production for foreign cars than it is on production for domestic car manufacturers.

Orders on miscellaneous consuming account are heavier than they were a month ago. Volume for June shipment points to maintenance of this mild pickup. The bulk of buying is for prompt shipment, few consumers ordering in anticipation of a price hike at midyear. More users are placing small lots to fill in depleted inventories, though most of them hold back orders until

they have signed contracts for their own finished products.

Some eastern stamping shops booked slightly more volume for May-June, and, in addition to placing steel required for that period, are covering small July needs.

Seasonal requirements for galvanized sheets are reflected in fairly high mill operations. At Chicago, farm uses, bin and ductwork (air conditioning and heating) account for the bulk of demand. Corrugated sheet is experiencing a strong seasonal movement, reflecting farm buying for siding and roofing.

The Navy Purchasing Office, Washington, closes June 3 on 2500 tons of 18 gage, cold rolled sheets.

Reinforcing Bars . . .

Reinforcing Bar Prices, Page 161

Rising building requirements are pushing reinforcing steel demand toward a seasonal peak. Numerous projects are up for bids, and awards are reported to be fairly active, particularly for highways, schools, and other public work.

Wire fabric and reinforcing wire mesh are getting quite a boost as highway proposals find their way through the maze of government red tape. This could turn into quite a little boom, come third quarter.

Steel Bars . . .

Bar Prices, Page 161

"We're getting a lot of inquiries and a lot of small orders, but no better over-all sales volume," says a major bar producer at Pittsburgh.

His comment about describes the general market situation. Competition is increasingly sharp and expectations are that volume in both carbon and alloy grades will be slow until August-September.

While there has been a slight improvement in the number of carbon orders for June, the total is not impressive. The cold finishers are not operating much better than 50 per cent of capacity, and demand for cold-finished bars is ahead of that for hot-rolled.

The bar mills have reserves of billets and can maintain prompt shipment schedules on most carbon grades. Forge shops are buying close to their needs. Automotive demand is almost nil, and not much on auto account is expected until midsummer. No more bar tonnage will be required for the 1958 model runs. Sales to farm implement makers are tapering, but they have been relatively substantial of late.

Tool Steel . . .

Tool Steel Prices, Page 165

Tool steel sales are bumping along on a level that's slightly above the lowest of the year. After a slight pickup in March, bookings have leveled off. Producers think their customers have adjusted production to current demand, so they don't expect any weakening in sales. Chances for an upturn before fall are considered remote, though.

One seller says his May entry pattern is better than April's, but he doubts the improvement has any significance. Diemakers who depend on automotive orders have made their big purchases of tool steel for the 1959 models. They'll be out of the market until the 1960 programs are released.

"The aircraft industry is pretty well tooled," says one sales execu-

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tive, "but there's a lot of interest in the production items."

Diemakers who supply the appliance industry report slightly improved sales.

Tin Plate . . .

Tin Plate Prices, Page 163

Production of tin plate is at capacity and is likely to continue that pace for some time. Bookings are ahead of those a month ago. Whether this reflects hedge buying against a possible price increase July 1 is uncertain. The mills are not commenting about prices and there is some question they will tip their hand by making known their position on tin plate before late June.

Electrolytic tin plate with a differential coating of .75 lb-.25 lb of tin plate per base box is now included in the tin mill products made by Weirton Steel Co., Weirton, W. Va. It is priced at $9.30 per base box, f.o.b. mill.

Tubular Goods . . .

Tubular Goods Prices, Page 165

Change in the tubular goods market situation in the last week has been slight. Demand continues sluggish, though some improvement in the movement of standard pipe is attending the seasonal pickup in construction activities.

"Standard pipe sales will be as good this month as last," a Pittsburgh mill reports.

Shipments are down from last year's level, but they're up considerably from those in first quarter, 1958. Heating and plumbing industries are providing support.

"Our sales volume in pressure and mechanical tubing is only 45 per cent of what it was a year ago," says another Pittsburgh producer. "We hit a low point in December or January, but while demand has bottomed out, there has been no appreciable improvement. Because of our big backlog, we've been able to ship about 70 per cent of last year's tonnage. But we're shipping stuff that we sold two years ago. Oil refineries and boiler manufacturers are still buying at a good rate."

Mechanical tubing sales are depressed because of weak automotive demand. Automakers' inventories are so low that orders are being placed on a "ship tomorrow"

basis. On the West Coast, May shipments of mechanical tubing are expected to slightly better those in April.

The oil industry continues to struggle in its own particular recession. The Texas oil production allowable for June has been set at 2,479,174 barrels daily, an increase of 42,603 barrels a day over the May allowable. Production will be kept on an eight-day basis this month.

A. M. Byers Co., Pittsburgh, has booked a $310,000 Navy order for 759 tons of ½ to 10 in. wrought iron pipe.

Plates . . .

Plate Prices, Page 161

Storage tank plate tonnage is heavier in the East and, with shipyard demand, accounts for a mild increase in over-all requirements.

Alco Products Inc., diesel locomotive shop, Schenectady, N. Y., is working two shifts, one of the few railroad suppliers relatively active. Better than 80 per cent of its activity is on production of equipment for export. The diesel rebuilding program is also beginning to gain momentum. Many of the early diesels are ready for replacement, and Alco is rebuilding with a new unit guarantee after 12 to 15 years' service.

The U. S. Bureau of Reclamation, Denver, is taking estimates on close to 15,000 tons of plates for penstocks and large diameter outlet pipe.

Many plate shops are operating with small backlogs, including weldments. They are diversifying work and estimating more tonnage but holding off purchases of plates until contracts are signed. They then ask for prompt shipments. Shops using the lighter gages are drawing on inventory for the bulk of their needs.

"We're not going to buy any plates in anticipation of a price hike July 1," says a Pittsburgh fabricator. "We lose more by tieing up our liquid assets and getting stuck with odd lengths and widths than we could gain by hedging."

A mill equipment maker reports a "normal" plate inventory of about 1000 tons. It began the year with a subtantial order backlog, but reports shipments are tapering. With

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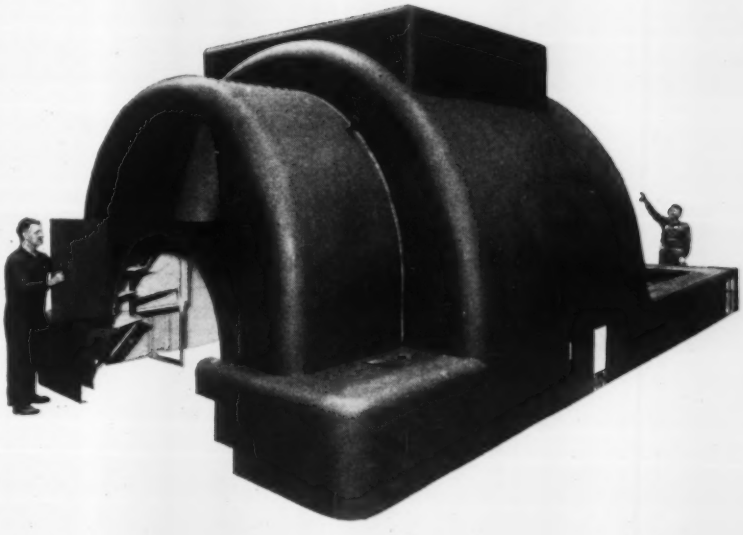
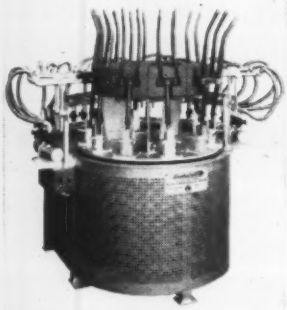


Columbia produces 250 bicycle forks per hour with automatic GAS brazing

Gas brazing is not new to Westfield, where Columbia bicycle frames have been brazed with Gas-fired Selas processing equipment for many years. During this time, pre-placing of brass filler material and automatic heating have limited dependence on operator skill, reduced material waste, and eliminated costly cleanup operations. With the installation of the new Gas brazing machine in their production operation, these advantages have been extended to include fork manufacture, also.

For information on how Gas equipment can help you in your production operations, call your Gas Company's industrial specialist. He'll be glad to discuss the economies and outstanding results you'll get with Gas and modern Gas equipment. *American Gas Association.*



Two fork styles in all standard bicycle sizes are joined from eight steel components on this new automatic Selas machine by Westfield Manufacturing Co., Westfield, Mass. Controlled combustion and flame geometry bring the parts to brazing temperature of 1750°F in only 86 seconds, using economical Gas equipment.

the steel mills operating only a few points over 50 per cent of capacity, the market for ladles and cars is virtually dead.

An estimated 16,000 tons of plates are required for four cargo vessels, Lykes Bros. Steamship Co., closing June 19 with the Federal Maritime Board.

Cuts Some Export Prices

Export base prices on several steel products were reduced by the U. S. Steel Export Co., New York, as of May 14. Hot-rolled sheets (18-gage and heavier) were reduced to $5.01 from $5.14 per 100 lb; cold-rolled sheets, to $6.22 from $6.49; concrete reinforcing bars, $5.51 from $5.87.

The reductions, the company explains, bring its export prices in line with domestic delivered quotations at seaboard and should enable it to distribute the products more effectively abroad.

Pig Iron . . .

Pig Iron Prices, Page 166

Optimism has been generated in the foundry industry by the current pickup in steel ingot production. Inquiry for castings is also increasing, but thus far there has been no substantial gain in bookings. Most foundrymen feel that a slight improvement will develop through June, followed by a lag in the July-August period and a substantial recovery over the balance of the year.

Foundries are operating at only 50 to 60 per cent of capacity (generally three or four days a week with some down to two days). As a result, demand for merchant iron is light.

Iron Ore . . .

Iron Ore Prices, Page 167

As of May 15, only 85 of the lake iron ore fleet of 250 vessels were in commission. It compares with 251 vessels, 100 per cent, in commission on the like date last year.

The first Pittsburgh Steamship Div. (U. S. Steel) vessel to carry a cargo of Lake Superior iron ore during the 1958 navigation season was the *Cason J. Calloway*. This ship left its winter berth at Milwaukee May 13 and two days later loaded ore at Two Harbors, Minn., for delivery at Gary, Ind., May 18.

Warehouse . . .

Warehouse Prices, Page 166

Pepped-up construction activity and steady demand from small fabricating firms have improved sales by warehouses. Users, having reduced their inventories, are buying only for immediate needs because of the easy availability of most items.

Heavier shipments to distributors have brightened the production picture, espiecially for hot and cold rolled bars, sheets, and structural shapes. Part of the heavier buying from mills is to bolster stocks of some products which had been allowed to fall too low.

Stiff competition is exerting a strong pressure on prices. Much of the price cutting in the Southwest, for instance, has been done by small distributors and importers.

Rare Earth Prices Cut

Prices of many rare earth oxides and salts have been reduced 40 to 90 per cent by Nuclear Corp. of America Inc., Burbank, Calif., refiner of scarce materials. The cuts were made possible by increased volume.

The sharpest reduction was in the price of 99 per cent pure lutetium oxide—from $150 per gram to $15. High purity oxides of thulium, europium, and neodymium fell 80 to 85 per cent. Most of the other sharp reductions were in prices of "medium" lots (100 to 1000 grams).

Nuclear Corp. also announced that terbium oxide and holmium oxide (99.8 per cent pure) are now available. Previously, only 98 per cent purity material could be guaranteed.

Semifinished Steel . . .

Semifinished Prices, Page 161

Stronger demand for steel, especially building products such as structurals and reinforcing, is pushing up steelmaking operations. The national ingot rate last week jumped three points to 54.5 per cent of capacity, highest level attained since January.

Further rise in the rate is anticipated over coming weeks. It looks like even Detroit area mills will put on more furnaces despite sluggishness in the auto industry. Great

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Lakes Steel Corp. is expected to reactivate 10 furnaces. Ford also is expected to add to its active units.

At Buffalo, four open hearths were added to the active list by Bethlehem Steel. Inland Steel at Chicago is operating at nearly 82 per cent of capacity, up 10 points from its average of recent weeks. Granite City Steel Co., Granite City, Ill., is operating five of its seven furnaces. Last month, it averaged about four furnaces.

Bethlehem Pacific Coast Steel Corp.'s Seattle plant is operating at 76 per cent of capacity. One new electric furnace is in operation. A second will be added later.

Structural Shapes . . .

Structural Shape Prices, Page 161

Structural fabricators are reducing their inventories at a faster pace, and more of them are entering new orders on steel mill books to meet the increase in their new bookings.

Bridges account for the bulk of the current bulge in structural estimating. Commercial building is off, though a fair volume is reported in New York City. An increasing number of shops that are estimating bridge tonnage have reduced backlogs of building work.

Distribution of tonnage among fabricators is broader and competition tends to keep prices down. It is a long time since bids for jobs in the Midwest have been submitted on such a low profit margin basis.

The seasonal betterment in construction steel requirements is being reflected in rising ingot production.

STRUCTURAL SHAPES . . .

STRUCTURAL STEEL PLACED

6550 tons, U. S. and Canadian approach superstructures, international suspension bridge, St. Lawrence River, Ogdensburg, N. Y.-Greenville, Ont., to Dominion Structural Steel Ltd., Montreal, Que.; project, two contracts, includes 12 truss spans, three 3-span continuous girders and two 4-span continuous girders, the latter 510 ft each; 4900 tons, 2150-ft bridge superstructure, American Bridge Div., U. S. Steel Corp., Pittsburgh.

3100 tons, construction trestle, St. Lawrence Seaway project, Lewiston, N. Y., to the Ernst Iron Works, Buffalo; Merritt-Chapman & Scott Corp., general contractor.

3000 tons, Hangar 17, Idlewild Airport, Port of New York Authority, to White Plains Iron Works, White Plains, N. Y.; direct letting.

1020 tons, 20-story apartment, 319-32 E. 46th St., New York, to Grand Iron Works, New York; through Elk Realty Inc., New York.

870 tons, superstructure, east bridge, Fresh Kills, Staten Island, N. Y., to Harris Structural Steel Co., New York; Woodcrest Construction Co., New York, general contractor.

630 tons, state highway bridges, Erie Thruway, Fairview-McKean Townships, Pennsylvania, to the Levinson Steel Co., Pittsburgh; Fred W. Ewing Inc., Corry, Pa., general contractor.

500 tons, furnace supports, power station, Trenton, N. J., to Belmont Iron Works, Philadelphia; Foster-Wheeler Corp., New York, general contractor.

435 tons, beam spans, four bridges, New Haven, Conn., to McDermott Steel Co., New Haven; Mariana Construction Co., New Haven, general contractor; 3215 tons, girder spans, to American Bridge Div., U. S. Steel Corp., Pittsburgh (STEEL, May 19).

380 tons, library, Harper College, Vestal, N. Y., to Bethlehem Fabricators Inc., Bethlehem, Pa.; Foster-Newman Construction Co., New York, general contractor.

350 tons, high school, Anchorage, Alaska, to the Isaacson Iron Works, Seattle; Warrack Construction Co., general contractor.

320 tons, highway bridge, Grays Harbor County, Washington State, to the United Concrete Pipe Corp., Auburn, Wash.; Harry H. Hawkins, Seattle, general contractor.

245 tons, 152-ft state bridge, Highway 80 over Broadway, Bangor, Maine, to Bancroft & Martin Rolling Mills Co., South Portland, Maine; H. B. Fleming Inc., South Portland, general contractor.

200 tons, hospital addition, Danbury, Conn., to Topper & Griggs (Bethlehem Fabricators Inc.), West Hartford, Conn.; E. & F. Construction Co., Bridgeport, Conn., general contractor.

STRUCTURAL STEEL PENDING

3200 tons, highway structure, Harlem River Drive, Cont. 145A, West 145th Street to Seventh Avenue, New York; bids June 5 to Albany, N. Y.

900 tons, twin 968-ft Oregon highway bridges, Snake River; general contract to Hansen & Parr Construction Co., Spokane, Wash., low at $952,650.

6000 tons, 37-story office building, Equitable Life Assurance Society, Avenue of the Americas, 51st and 52nd Streets, New York; Turner Construction Co., New York, general contractor.

3000 tons, galvanized tower steel; bids to Bonneville Power Administration, Portland, Oreg., June 11; Spec. No. 8768.

2090 tons, five state bridges, including three composite I-beams, one railroad I-beam, and one (586 ft) girder-composite I-beam, Rome N. Y.; bids June 5 to Albany, N. Y.

700 tons, four highway grade separation structures, composite I-beams, interstate route 502, Sec. 2 (Latham to Mohawk River) Albany, N. Y.

470 tons, two composite WF beam, four-spans each, and one 4-span welded plate girder, highway grade separations, Sunrise Highway extension, contract 1, Suffolk County, New York; bids June 5 to Albany, N. Y.

375 tons, highway grade separation structure, Enfield, Conn.; bids June 2, to Hartford, Conn.

300 tons plus, twin, 981-ft Idaho State bridges, Minidoka County; W. R. Cahoon Construction Co., Pocatello, Idaho, low at $435,811.

300 tons, single plate girder span, railroad grade separation over the New York Central, Brewster-Carmel, Putnam County, New York.

140 tons, I-beam bridge, Augusta, Maine; also 75 tons of reinforcing bars; bids in.

REINFORCING BARS . . .

REINFORCING BARS PLACED

1415 tons, plate girder I-beam bridge, also five I-beam bridges, Harrisburg, Pa., to Joseph T. Ryerson & Son Inc., Philadelphia; Berlanti Construction Co., Harrison, N. Y., general contractor; 130 tons, steel highway mesh, to the Bethlehem Steel Co., Bethlehem, Pa.; also 4850 tons, fabricated structural steel, to the Harris Structural Steel Co., New York (STEEL, 5/19/58).

10,000 tons or more, three phases, Lloyd Center, Portland, Oreg., reported placed with the Soule Steel Co. and Mercer Steel Co., Portland.

615 tons, one railroad and three grade crossing structures, New Haven, Conn., to the Bethlehem Steel Co., Bethlehem, Pa.; Mariani Construction Co., New Haven, general contractor; 300 tons, steel piles, to C. W. Blakeslee & Sons, New Haven.

610 tons, plant and science building, Washington State College, Pullman, Wash., to the Northwest Steel Rolling Mills Inc., Seattle; Johnson, Busbaum & Rauh, Spokane Wash., general contractor.

330 tons, highway bridge, Grays Harbor County, Washington State, to the James D. English Co., Tacoma, Wash.; Harry H. Hawkins, Seattle, general contractor.

DISTRICT INGOT RATES

(Percentage of Capacity Engaged)

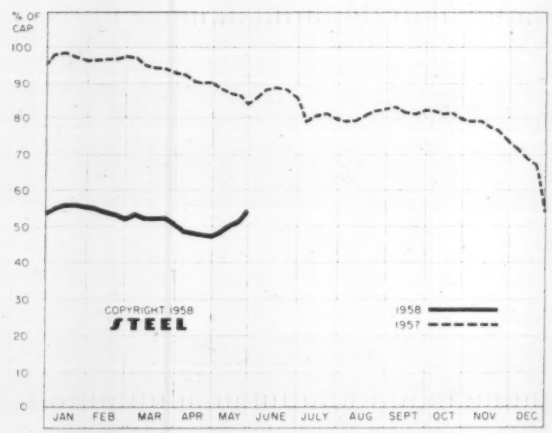
	Week Ended May 25	Change	Same Week 1957	Same Week 1956
Pittsburgh	52	— 1.5	90	99
Chicago	60	+ 4.5*	88	101
Mid-Atlantic	49	+ 0.5	94	98.5
Youngstown	45	0	81	101
Wheeling	73.5	+ 2.5	84.5	101
Cleveland	30.5	+ 4.5	84	99
Buffalo	44	+ 5	52.5	105
Birmingham	67	+ 0.5	92.5	23.5
New England	40	0	56	89
Cincinnati	62	+ 9.5*	80	94
St. Louis	78.5	+ 1.5	84.5	99
Detroit	44.5	+ 7*	80.5	93.5
Western	67	0	100	107
National Rate	54.5	+ 3	84	96.5

INGOT PRODUCTION‡

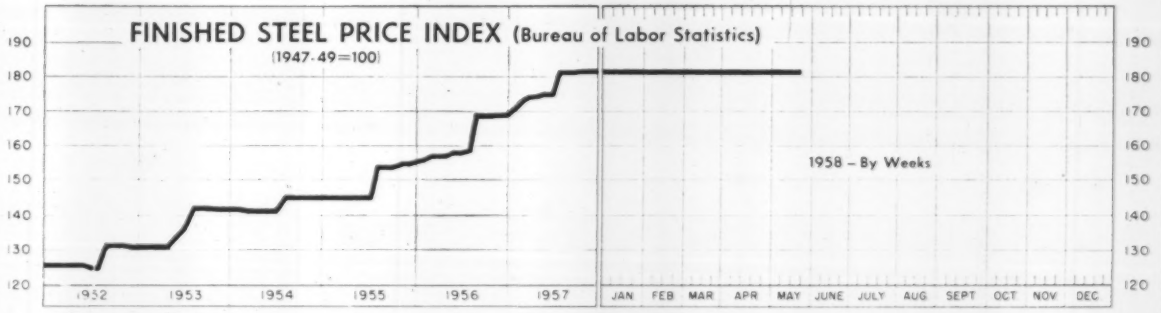
	Week Ended May 25	Week Ago	Month Ago	Year Ago
INDEX (1947-49=100)	92.2†	87.9	79.1	137.7
NET TONS (In thousands)	1,481†	1,412	1,270	2,212

*Change from preceding week's revised rate. †Estimated. ‡American Iron & Steel Institute. Weekly capacity (net tons): 2,699,173 in 1958; 2,559,490 in 1957; 2,461,893 in 1956.

NATIONAL STEELWORKS OPERATIONS



Price Indexes and Composites



May 20, 1957	Week Ago	Month Ago	Apr. Avg	Year Ago
181.7	181.7	181.6	181.6	174.4

AVERAGE PRICES OF STEEL (Bureau of Labor Statistics)

Week Ended May 20

Prices include mill base prices and typical extras and deductions. Units are 100 lb except where otherwise noted in parentheses. For complete description of the following products and extras and deductions applicable to them, write to STEEL.

Rails, Standard No. 1	$5.600	Bars, Reinforcing	6.135
Rails, Light, 40 lb	7.067	Bars, C.F., Carbon	10.360
Tie Plates	6.600	Bars, C.F., Alloy	13.875
Axles, Railway	9.825	Bars, C.F., Stainless, 302 (lb)	0.553
Wheels, Freight Car, 33 in. (per wheel)	60.000	Sheets, H.R., Carbon	6.192
Plates, Carbon	6.150	Sheets, C.R., Carbon	7.089
Structural Shapes	5.942	Sheets, Galvanized	8.270
Bars, Tool Steel, Carbon (lb)	0.535	Sheets, C.R., Stainless, 302 (lb)	0.688
Bars, Tool Steel, Alloy, Oil Hardening Die (lb)	0.650	Sheets, Electrical	12.025
Bars, Tool Steel, H.R., Alloy, High Speed, W 6.75, Cr 4.5, V 2.1, Mo 5.5, C 0.60 (lb)	1.355	Strip, C.R., Carbon	9.243
Bars, Tool Steel, H.R., Alloy, High Speed, W18, Cr 4, V 1 (lb)	1.850	Strip, C.R., Stainless, 430 (lb)	0.493
Bars, H.R., Alloy	10.525	Strip, H.R., Carbon	6.095
Bars, H.R., Stainless, 303 (lb)	0.525	Pipe, Black, Buttweld (100 ft)	19.814
Bars, H.R., Carbon	6.425	Pipe, Galv., Buttweld (100 ft)	23.264
		Pipe, Line (100 ft)	199.023
		Casing, Oil Well, Carbon (100 ft)	194.499
		Casing, Oil Well, Alloy (100 ft)	304.610
Tubes, Boiler (100 ft)	49.130	Black Plate, Canmaking Quality (95 lb base box)	7.583
Tubing, Mechanical, Carbon (100 ft)	24.953	Wire, Drawn, Carbon	10.225
Tubing, Mechanical, Stainless, 304 (100 ft)	205.608	Wire, Drawn, Stainless, 430 (lb)	0.653
Tin Plate, Hot-dipped, 1.25 lb (95 lb base box)	9.783	Bale Ties (bundles)	7.967
Tin Plate, Electrolytic, 0.25 lb (95 lb base box)	8.483	Nails, Wire, 8d Common	9.828
		Wire, Barbed (80-rod spool)	8.719
		Woven Wire Fence (20-rod roll)	21.737

STEEL's FINISHED STEEL PRICE INDEX*

	May 21 1958	Week Ago	Month Ago	Year Ago	5 Yr Ago
Index (1935-39 avg=100)	239.15	239.15	239.15	228.59	182.82
Index in cents per lb	6.479	6.479	6.479	6.193	4.953

STEEL's ARITHMETICAL PRICE COMPOSITES*

	May 21 1958	Week Ago	Month Ago	Year Ago	5 Yr Ago
Finished Steel, NT	$145.42	$145.42	$145.42	$140.24	$111.28
No. 2 Fdry Pig Iron, GT	66.49	66.49	66.49	64.70	55.04
Basic Pig Iron, GT	65.99	65.99	65.99	64.23	54.66
Malleable Pig Iron, GT	67.27	67.27	67.27	65.77	55.77
Steelmaking Scrap, GT	33.50	32.83	32.83	46.67	39.00

*For explanation of weighted index see STEEL, Sept. 19, 1949, p. 54; of arithmetical price composite, STEEL, Sept. 1, 1952, p. 130.

Comparison of Prices

Comparative prices by districts, in cents per pound except as otherwise noted. Delivered prices based on nearest production point.

FINISHED STEEL

	May 21 1958	Week Ago	Month Ago	Year Ago	5 Yr Ago
Bars, H.R., Pittsburgh	5.425	5.425	5.425	5.075	3.95
Bars, H.R., Chicago	5.425	5.425	5.425	5.075	3.95
Bars, H.R., deld. Philadelphia	5.725	5.725	5.725	5.365	4.502
Bars, C.F., Pittsburgh	7.30*	7.30*	7.30*	6.85*	4.925
Shapes, Std., Pittsburgh	5.275	5.275	5.275	5.00	3.85
Shapes, Std., Chicago	5.275	5.275	5.275	5.00	3.85
Shapes, deld., Philadelphia	5.545	5.545	5.545	5.31	4.13
Plates, Pittsburgh	5.10	5.10	5.10	4.85	3.90
Plates, Chicago	5.10	5.10	5.10	4.85	3.90
Plates, Coatesville, Pa.	5.10	5.10	5.10	5.25	4.35
Plates, Sparrows Point, Md.	5.10	5.10	5.10	4.85	3.90
Plates, Claymont, Del.	5.10	5.10	5.10	5.70	4.35
Sheets, H.R., Pittsburgh	4.925	4.925	4.925	4.675	3.775
Sheets, H.R., Chicago	4.925	4.925	4.925	4.675	3.775
Sheets, C.R., Pittsburgh	6.05	6.05	6.05	5.75	4.575
Sheets, C.R., Chicago	6.05	6.05	6.05	5.75	4.575
Sheets, C.R., Detroit	6.05-6.15	6.05-6.15	6.05-6.15	5.75-5.85	4.775
Sheets, Galv., Pittsburgh	6.60	6.60	6.60	6.30	5.075
Strip, H.R., Pittsburgh	4.925	4.925	4.925	4.675	3.975-4.225
Strip, H.R., Chicago	4.925	4.925	4.925	4.675	3.725
Strip, C.R., Pittsburgh	7.15	7.15	7.15	6.85	5.10-5.80
Strip, C.R., Chicago	7.15	7.15	7.15	6.85	5.35
Strip, C.R., Detroit	7.25	7.25	7.25	6.95	5.30-6.05
Wire, Basic, Pittsburgh	7.65	7.65	7.65	7.20	5.225-5.475
Nails, Wire, Pittsburgh	8.95	8.95	8.95	8.49	6.35
Tin plate (1.50 lb) box, Pitts.	$10.30	$10.30	$10.30	$10.30	$8.95

*Including 0.35c for special quality.

SEMIFINISHED STEEL

Billets, forging, Pitts. (NT)	$96.00	$96.00	$96.00	$91.50	$70.50
Wire rods, 7/32-5/8" Pitts.	6.15	6.15	6.15	5.80	4.425

PIG IRON, Gross Ton

	May 21 1958	Week Ago	Month Ago	Year Ago	5 Yr Ago
Bessemer, Pitts.	$67.00	$67.00	$67.00	$65.50	$55.50
Basic, Valley	66.00	66.00	66.00	64.50	54.50
Basic, deld., Phila.	70.41	70.41	70.41	68.38	59.25
No. 2 Fdry, NevilleIsland,Pa.	66.50	66.50	66.50	65.00	55.00
No. 2 Fdry, Chicago	66.50	66.50	66.50	65.00	55.00
No. 2 Fdry, deld., Phila.	70.91	70.91	70.91	68.88	59.75
No. 2 Fdry, Birm.	62.50	62.50	62.50	59.00	51.38
No. 2 Fdry (Birm.) deld. Cin.	70.20	70.20	70.20	66.70	58.93
Malleable, Valley	66.50	66.50	66.50	65.00	55.00
Malleable, Chicago	66.50	66.50	66.50	65.00	55.00
Ferromanganese, net ton	245.00†	245.00†	245.00†	255.00†	200.00*

†74-76% Mn, Duquesne, Pa. *Etna, Pa.

SCRAP, Gross Ton (Including broker's commission)

No. 1 Heavy Melt, Pittsburgh	$32.50	$31.50	$32.50	$44.50	$39.50
No. 1 Heavy Melt, E. Pa.	34.50	34.50	36.00	52.00	41.50
No. 1 Heavy Melt, Chicago	33.50	32.50	30.00	42.50	36.00
No. 1 Heavy Melt, Valley	36.50	33.50	32.50	43.50	41.50
No. 1 Heavy Melt, Cleve.	33.00	30.50	29.50	38.50	39.00
No. 1 Heavy Melt, Buffalo	26.50	26.50	26.50	40.50	41.75
Rails, Rerolling, Chicago	51.50	50.50	52.00	61.50	47.50
No. 1 Cast, Chicago	40.50	38.50	38.50	42.50	39.50

COKE, Net Ton

Beehive, Furn., Connlsvl.	$15.25	$15.25	$15.25	$15.25	$14.75
Beehive, Fdry., Connlsvl.	18.25	18.25	18.25	18.00	17.00

TUBING PROBLEMS?

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BISHOP'S QUICK SERVICE TEAM*

Don't let tubing problems delay your operations! When you need help in a hurry, call in BISHOP—manufacturers of *unexcelled* quality tubing. Within 24 hours BISHOP's Quick Service Team (QST) will go into action to provide expert assistance on your specific problems.

What is this Quick Service Team? It's a corps of metallurgists and specialists who will provide *sound*, sure advice . . . qualified men in sales who *know* tubing, are pledged to give *fast* reliable service . . . and production experts who will push your job through for *quickest* possible delivery.

BRIEFLY, THE BISHOP LINE . . .

STAINLESS STEEL TUBING Seamless, Welded & Drawn	Mechanical, Aircraft, Capillary, Hypodermic also NEW Stabilized and L grades, precipitation hardening alloys	0.008" to 1.000" OD 0.003" to 0.083" wall
NICKEL & NICKEL ALLOY TUBING	All standard grades	up to 1.000" OD 0.065" wall max
TUBULAR FABRICATED PARTS	Flanged, flared, milled, slotted, swaged, threaded	
GLASS-TO-METAL SEALING ALLOYS	Low expansion alloys for glass sealing applications	
CLAD METALS & COMPOSITE WIRES	Base metals & precious metals in various combinations.	
PLATINUM GROUP METALS	Fabricated products—chemicals	
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Get help in a hurry—start the Quick Service Team working for you. Contact Bishop by phone: Malvern 3100, by TWX: Malvern 570, or call your local steel warehouse.

Tubular Products Division

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MALVERN, PENNSYLVANIA

Steel Prices

Mill prices as reported to STEEL, May 21, cents per pound except as otherwise noted. *Changes shown in italics.* Code numbers following mill points indicate producing company. Key to producers, page 162; to footnotes, page 164.

SEMIFINISHED

INGOTS, Carbon, Forging (NT)
Munhall,Pa. U5 ....$73.50

INGOTS, Alloy (NT)
Detroit S41 ....$77.00
Farrell,Pa. S3 ....77.00
Lowellville, O. S3 ....77.00
Midland,Pa. C18 ....77.00
Munhall,Pa. U5 ....77.00
Sharon,Pa. S3 ....77.00

BILLETS, BLOOMS & SLABS
Carbon, Rerolling (NT)
Bessemer,Pa. U5 ....$77.50
Buffalo R2 ....77.50
Clairton,Pa. U5 ....77.50
Ensley,Ala. T2 ....77.50
Fairfield,Ala. T2 ....77.50
Fontana,Calif. K1 ....88.00
Gary,Ind. U5 ....77.50
Johnstown,Pa. B3 ....77.50
Lackawanna,N.Y. B2 ..77.50
Munhall,Pa. U5 ....77.50
Owensboro,Ky. G8 ....77.50
S.Chicago,Ill. R2, U5 ..77.50
S.Duquesne,Pa. U5 ....77.50
Sterling,Ill. N15 ....77.50
Youngstown R2 ....77.50

Carbon, Forging (NT)
Bessemer,Pa. U5 ....$96.00
Buffalo R2 ....96.00
Canton,O. R2 ....98.50
Clairton,Pa. U5 ....96.00
Conshohocken,Pa. A3 ..101.00
Ensley,Ala. T2 ....96.00
Fairfield,Ala. T2 ....96.00
Fontana,Calif. K1 ....105.50
Gary,Ind. U5 ....96.00
Geneva,Utah C11 ....96.00
Houston S5 ....101.00
Johnstown,Pa. B2 ....96.00
Lackawanna,N.Y. B2 ..96.00
Los Angeles B3 ....105.50
Midland,Pa. C18 ....96.00
Munhall,Pa. U5 ....96.00
Owensboro,Ky. G8 ....96.00
Seattle B3 ....109.50
Sharon,Pa. S3 ....96.00
S.Chicago R2, U5 W14..96.00
S.Duquesne,Pa. U5 ....96.00
S.SanFrancisco B3 ..105.50
Warren,O. C17 ....96.00

Alloy, Forging (NT)
Bethlehem,Pa. B2 ...$114.00
Bridgeport,Conn. C32..114.00
Buffalo R2 ....114.00
Canton,O. R2, T7 ....114.00
Conshohocken,Pa. A3 ..121.00
Detroit S41 ....114.00
Economy,Pa. B14 ....114.00
Farrell,Pa. S3 ....114.00
Fontana,Calif. K1 ...135.00
Gary,Ind. U5 ....114.00
Houston S5 ....119.00
Ind.Harbor,Ind. Y1 ..114.00
Johnstown,Pa. B2 ....114.00
Lackawanna,N.Y. B2..114.00
LosAngeles B3 ....134.00
Lowellville,O. S3 ....114.00
Massillon,O. R2 ....114.00
Midland,Pa. C18 ....114.00
Munhall,Pa. U5 ....114.00
Owensboro,Ky. G8 ....114.00
Sharon,Pa. S3 ....114.00
S.Chicago R2,U5,W14 ..114.00
S.Duquesne,Pa. U5 ..114.00
Struthers,O. Y1 ....114.00
Warren,O. C17 ....114.00

ROUNDS, SEAMLESS TUBE (NT)
Buffalo R2 ....$117.50
Canton,O. R2 ....120.00
Cleveland R2 ....117.50
Gary,Ind. U5 ....117.50
S.Chicago,Ill. R2, W14 117.50
S.Duquesne,Pa. U5 ...117.50
Warren,O. C17 ....117.50

SKELP
Aliquippa,Pa. J5 ....5.075
Munhall,Pa. U5 ....4.875
Pittsburgh J5 ....5.075
Warren,O. R2 ....4.875
Youngstown R2, U5 ..4.875

WIRE RODS
AlabamaCity,Ala. R2 ...6.15
Aliquippa,Pa. J5 ....6.15
Alton,Ill. L1 ....6.35
Buffalo W12 ....6.15
Cleveland A7 ....6.15
Donora,Pa. A7 ....6.15
Fairfield,Ala. T2 ....6.15
Houston S5 ....6.40
IndianaHarbor,Ind. Y1 ..6.15
Johnstown,Pa. B2 ....6.15
Joliet,Ill. A7 ....6.15
KansasCity,Mo. S5 ....6.40
Kokomo,Ind. C16 ....6.25
LosAngeles B3 ....6.95
Minnequa,Colo. C10 ....6.40
Monessen,Pa. P7 ....6.15
N.Tonawanda,N.Y. B11..6.15
Pittsburg,Calif. C11 ....6.95
Portsmouth,O. P12 ....6.15
Roebling,N.J. R5 ....6.25
S.Chicago,Ill. R2 ....6.15
SparrowsPoint,Md. B2..6.25
Sterling,Ill.(1) N15 ....6.15
Sterling,Ill. N15 ....6.25
Struthers,O. Y1 ....6.15
Worcester,Mass. A7 ....6.45

STRUCTURALS

Carbon Steel Std. Shapes
AlabamaCity,Ala. R2 ..5.275
Atlanta A11 ....5.475
Aliquippa,Pa. J5 ....5.275
Bessemer,Ala. T2 ....5.275
Bethlehem,Pa. B2 ....5.325
Birmingham C15 ....5.275
Clairton,Pa. U5 ....5.275
Fairfield,Ala. T2 ....5.275
Fontana,Calif. K1 ....6.075
Gary,Ind. U5 ....5.275
Geneva,Utah C11 ....5.275
Houston S5 ....5.375
Ind.Harbor,Ind. I-2 ....5.275
Johnstown,Pa. B2 ....5.325
Joliet,Ill. P22 ....5.275
KansasCity,Mo. S5 ....5.375
Lackawanna,N.Y. B2 ....5.325
LosAngeles B3 ....5.975
Minnequa,Colo. C10 ..5.575
Munhall,Pa. U5 ....5.275
Niles,Calif. P1 ....5.925
Phoenixville,Pa. P4 ....5.325
Portland,Oreg. O4 ....6.025
Seattle B3 ....6.025
S.Chicago,Ill. U5 W14 5.275
S.SanFrancisco B3 ....5.925
Sterling,Ill. N15 ....5.275
Torrance,Calif. C11 ....5.975
Weirton,W.Va. W6 ....5.275

Wide Flange
Bethlehem,Pa. B2 ....5.325
Clairton,Pa. U5 ....5.275
Fontana,Calif. K1 ....6.225
IndianaHarbor,Ind. I-2..5.275
Lackawanna,N.Y. B2 ..5.325
Munhall,Pa. U5 ....5.275
Phoenixville,Pa. P4 ....5.325
S.Chicago,Ill. U5 ....5.275
Weirton,W.Va. W6 ....5.275

Alloy Std. Shapes
Aliquippa,Pa. J5 ....6.55
Clairton,Pa. U5 ....6.55
Gary,Ind. U5 ....6.55
Houston S5 ....6.65
KansasCity,Mo. S5 ....6.65
Munhall,Pa. U5 ....6.55
S.Chicago,Ill. U5 ....6.55

H.S., L.A. Std. Shapes
Aliquippa,Pa. J5 ....7.75
Bessemer,Ala. T2 ....7.75
Bethlehem,Pa. B2 ....7.80
Clairton,Pa. U5 ....7.75
Fairfield,Ala. T2 ....7.75
Fontana,Calif. K1 ....8.55
Gary,Ind. U5 ....7.75
Geneva,Utah C11 ....7.75
Houston S5 ....7.85
Ind.Harbor,Ind. I-2, Y1 7.75
Johnstown,Pa. B2 ....7.80
KansasCity,Mo. S5 ....7.85
Lackawanna,N.Y. B2 ..7.80
LosAngeles B3 ....8.45
Munhall,Pa. U5 ....7.75
Seattle B3 ....8.50
S.Chicago,Ill. U5, W14..7.75
S.SanFrancisco B3 ....8.40
Struthers,O. Y1 ....7.75

H.S., L.A. Wide Flange
Bethlehem,Pa. B2 ....7.80
Lackawanna,N.Y. B2 ..7.80
Munhall,Pa. U5 ....7.75
S.Chicago,Ill. U5 ....7.75

PILING

BEARING PILES
Bethlehem,Pa. B2 ....5.325
Lackawanna,N.Y. B2 ..5.325
Munhall,Pa. U5 ....5.275
S.Chicago,Ill. U5 ....5.275

STEEL SHEET PILING
Lackawanna,N.Y. B2 ..6.225
Munhall,Pa. U5 ....6.225
S.Chicago,Ill. U5 ....6.225
Weirton,W.Va. W6 ....6.225

PLATES

PLATES, Carbon Steel
AlabamaCity, Ala. R2 ..5.10
Aliquippa,Pa. J5 ....5.10
Ashland,Ky.(15) A10 ....5.10
Atlanta A11 ....5.30
Bessemer,Ala. T2 ....5.10
Clairton,Pa. U5 ....5.10
Claymont,Del. C22 ....5.10
Cleveland J5, R2 ....5.20
Coatesville,Pa. L7 ....5.10
Conshohocken,Pa. A3 ..5.10
Ecorse,Mich. G5 ....5.20
Fairfield,Ala. T2 ....5.10
Fontana,Calif.(30) K1 ..5.90
Gary,Ind. U5 ....5.10
Geneva,Utah C11 ....5.10
GraniteCity,Ill. G4 ....5.30
Harrisburg,Pa. P4 ....5.10
Houston S5 ....5.20
Ind.Harbor,Ind. I-2, Y1..5.10
Johnstown,Pa. B2 ....5.10
Lackawanna,N.Y. B2 ....5.10
LoneStar,Tex. L6 ....5.20
Mansfield,O. E6 ....5.10
Minnequa,Colo. C10 ....5.95
Munhall,Pa. U5 ....5.10
Newport,Ky. A2 ....5.10
Pittsburgh J5 ....5.10
Riverdale,Ill. A1 ....5.10
Seattle B3 ....6.00
Sharon,Pa. S3 ....5.10
S.Chicago,Ill. U5, W14 ..5.10
SparrowsPoint,Md. B2 ..5.10
Sterling,Ill. N15 ....5.10
Steubenville,O. W10 ....5.10
Warren,O. R2 ....5.10
Youngstown U5, Y1 ....5.10

PLATES, Carbon Abras. Resist.
Claymont,Del. C22 ....6.75
Fontana,Calif. K1 ....7.55
Geneva,Utah C11 ....6.75
Houston S5 ....6.85
Johnstown,Pa. B2 ....6.75
SparrowsPoint,Md. B2 ..6.75

PLATES, Wrought Iron
Economy,Pa. B14 ....13.15

PLATES, H.S., L.A.
Aliquippa,Pa. J5 ....7.625
Bessemer,Ala. T2 ....7.625
Clairton,Pa. U5 ....7.625
Claymont,Del. C22 ....7.625
Cleveland J5, R2 ....7.625
Coatesville,Pa. L7 ....7.625
Conshohocken,Pa. A3 ..7.625
Economy,Pa. B14 ....7.625
Ecorse,Mich. G5 ....7.725
Fairfield,Ala. T2 ....7.625
Farrell,Pa. S3 ....7.625
Fontana,Calif.(30) K1..8.425
Gary,Ind. U5 ....7.625
Geneva,Utah C11 ....7.625
Houston S5 ....7.75
Ind.Harbor,Ind. I-2, Y1..7.625
Johnstown,Pa. B2 ....7.625
Munhall,Pa. U5 ....7.625
Pittsburgh J5 ....7.625
Seattle B3 ....8.525
Sharon,Pa. S3 ....7.625
S.Chicago,Ill. U5, W14 ..7.625
SparrowsPoint,Md. B2 ..7.625
Warren,O. R2 ....7.625
Youngstown U5 ....7.625

PLATES, ALLOY
Aliquippa,Pa. J5 ....7.20
Claymont,Del. C22 ....7.20
Coatesville,Pa. L7 ....7.20
Economy,Pa. B14 ....7.20
Fontana,Calif. K1 ....8.00
Gary,Ind. U5 ....7.20
Houston S5 ....7.30
Ind.Harbor,Ind. Y1 ....7.20
Johnstown,Pa. B2 ....7.20
Lowellville,O. S3 ....7.20
Munhall,Pa. U5 ....7.20
Newport,Ky. A2 ....7.20
Pittsburgh J5 ....7.20
Seattle B3 ....8.10
Sharon,Pa. S3 ....7.20
S.Chicago,Ill. U5, W14 ..7.20
SparrowsPoint,Md. B2 ..7.20
Youngstown Y1 ....7.20

FLOOR PLATES
Cleveland J5 ....6.175
Conshohocken,Pa. A3 ..6.175
Ind.Harbor,Ind. I-2 ....6.175
Munhall,Pa. U5 ....6.175
S.Chicago,Ill. U5 ....6.175

PLATES, Ingot Iron
Ashland c.l.(15) A10 ..5.35
Ashland l.c.l.(15) A10..5.85
Cleveland c.l. R2 ....5.85
Warren,O. c.l. R2 ....5.85

BARS

BARS, Hot-Rolled Carbon (Merchant Quality)
Ala.City,Ala.(9) R2 ...5.425
Aliquippa,Pa.(9) J5 ...5.425
Alton,Ill. L1 ....5.625
Atlanta(9) A11 ....5.625
Bessemer,Ala.(9) T2 ..5.425
Birmingham(9) C15 ...5.425
Buffalo(9) R2 ....5.425
Clairton,Pa.(9) U5 ....5.425
Cleveland (9) R2 ....5.425
Ecorse,Mich.(9) G5 ...5.525
Emeryville,Calif. J7 ...6.175
Fairfield,Ala.(9) T2 ...5.425
Fairless,Pa.(9) U5 ....5.575
Fontana,Calif.(9) K1 ...6.125
Gary,Ind.(9) U5 ....5.425
Houston(9) S5 ....5.675
Ind.Harbor(9) I-2, Y1..5.425
Johnstown,Pa.(9) B2 ...5.425
Joliet,Ill. P22 ....5.425
KansasCity,Mo.(9) S5..5.675
Lackawanna(9) B2 ....5.425
LosAngeles(9) B3 ....6.125
Midland,Pa.(23) C18 ...5.725
Milton,Pa. M18 ....5.575
Minnequa,Colo. C10 ...5.875
Niles,Calif. P1 ....6.125
N.T'wanda,N.Y.(23)B11..5.775
Owensboro,Ky.(9) G8 ...5.425
Pittsburg,Calif.(9) C11..6.125
Pittsburgh(9) J5 ....5.425
Portland,Oreg. O4 ....6.175
Seattle B3, N14 ....6.175
S.Ch'c'go(9)R2,U5,W14 5.425
S.Duquesne,Pa.(9) U5 ..5.425
S.SanFran.,Calif.(9)B3 6.175
Sterling,Ill.(1)(9) N15..5.425
Sterling,Ill.(9) N15 ....5.525
Struthers,O.(9) Y1 ....5.425
Tonawanda,N.Y. B12 ...5.425
Torrance,Calif.(9) C11 ..6.125
Youngstown(9)R2, U5 ..5.425

BARS, H.R. Leaded Alloy (Including leaded extra)
Warren,O. C17 ....7.475

BARS, Hot-Rolled Alloy
Aliquippa,Pa. J5 ....6.475
Bethlehem,Pa. B2 ....6.475
Bridgeport,Conn. C32 ..6.55
Buffalo R2 ....6.475
Canton,O. R2, T7 ....6.475
Clairton,Pa. U5 ....6.475
Detroit S41 ....6.475
Economy,Pa. B14 ....6.475
Ecorse,Mich. G5 ....6.575
Fairless,Pa. U5 ....6.625
Farrell,Pa. S3 ....6.475
Fontana,Calif. K1 ....7.525
Gary,Ind. U5 ....6.475
Houston S5 ....6.725
Ind.Harbor,Ind. I-2, Y1..6.475
Johnstown,Pa. B2 ....6.475
KansasCity,Mo. S5 ....6.725
Lackawanna,N.Y. B2 ....6.475
Lowellville,O. S3 ....6.475
LosAngeles B3 ....7.525
Massillon,O. R2 ....6.475
Midland,Pa. C18 ....6.475
Owensboro,Ky. G8 ....6.475
Pittsburgh J5 ....6.475
Sharon,Pa. S3 ....6.475
S.Chicago R2, U5, W14 6.475
S.Duquesne,Pa. U5 ....6.475
Struthers,O. Y1 ....6.475
Warren,O. C17 ....6.475
Youngstown U5 ....6.475

BARS & SMALL SHAPES, H.R. High-Strength, Low-Alloy
Aliquippa,Pa. J5 ....7.925
Bessemer,Ala. T2 ....7.925
Bethlehem,Pa. B2 ....7.925
Clairton,Pa. U5 ....7.925
Cleveland R2 ....7.925
Ecorse,Mich. G5 ....8.025
Fairfield,Ala. T2 ....7.925
Fontana,Calif. K1 ....8.625
Gary,Ind. U5 ....7.925
Houston S5 ....8.175
Ind.Harbor,Ind. Y1 ....7.925
Johnstown,Pa. B2 ....7.925
KansasCity,Mo. S5 ....8.175
Lackawanna,N.Y. B2 ....7.925
LosAngeles B3 ....8.625
Pittsburgh J5 ....7.925
Seattle B3 ....8.675
S.Chicago,Ill. U5, W14..7.925
S.Duquesne,Pa. U5 ....7.925
S.SanFrancisco B3 ....8.675
Struthers,O. Y1 ....7.925
Youngstown U5 ....7.925

BAR SIZE ANGLES; H.R. Carbon
Bethlehem,Pa. (9) B2 ..5.575
Houston(9) S5 ....5.675
KansasCity,Mo.(9) S5..5.675
Lackawanna(9) B2 ....5.425
Sterling,Ill. N15 ....5.525
Sterling,Ill.(1) N15 ....5.425
Tonawanda,N.Y. B12 ...5.425

BAR SIZE ANGLES; S. Shapes
Aliquippa,Pa. J5 ....5.425
Atlanta A11 ....5.625
Joliet,Ill. P22 ....5.425
Niles,Calif. P1 ....6.125
Pittsburgh J5 ....5.425
Portland,Oreg. O4 ....6.175
SanFrancisco S7 ....6.275
Seattle B3 ....6.175

BAR SHAPES, Hot-Rolled Alloy
Aliquippa,Pa. J5 ....6.55
Clairton,Pa. U5 ....6.55
Gary,Ind. U5 ....6.55
Houston S5 ....6.80
KansasCity,Mo. S5 ....6.80
Pittsburgh J5 ....6.55
Youngstown U5 ....6.55

BARS, C.F., Leaded Alloy (Including leaded extra)
Ambridge,Pa. W18 ....9.925
BeaverFalls,Pa. M12..9.925
Camden,N.J. P13 ....10.10
Chicago W18 ....9.925
Cleveland C20 ....9.925*
Elyria,O. W8 ....9.925
LosAngeles P2, S30 ..11.40*
Monaca,Pa. S17 ....9.925
Newark,N.J. W18 ....10.10
SpringCity,Pa. K3 ....10.10
Warren,O. C17 ....9.925

*Grade A; add 0.50c for Grade B.

BARS, Cold-Finished Carbon
Ambridge,Pa. W18 ....7.30
BeaverFalls,Pa. M12,R2..7.30
Birmingham C15 ....7.90
Buffalo B5 ....7.35
Camden,N.J. P13 ....7.75
Carnegie,Pa. C12 ....7.30
Chicago W18 ....7.30
Cleveland A7, C20 ....7.30
Detroit B5, P17 ....7.50
Detroit S41 ....7.30
Donora,Pa. A7 ....7.30
Elyria,O. W8 ....7.30
FranklinPark,Ill. N5 ....7.30
Gary,Ind. R2 ....7.30
GreenBay,Wis. F7 ....7.30
Hammond,Ind. J5, L2 ..7.30
Hartford,Conn. R2 ....7.80
Harvey,Ill. B5 ....7.30
LosAngeles(49) S30 ....8.75
LosAngeles P2, R2 ....8.75
Mansfield,Mass. B5 ....7.85
Massillon,O. R2, R8 ....7.30
Midland,Pa. C18 ....7.30
Monaca,Pa. S17 ....7.30
Newark,N.J. W18 ....7.75
NewCastle,Pa.(17) B4 ..7.30
Pittsburgh J5 ....7.30
Plymouth,Mich.P5 ....7.55
Putnam,Conn. W18 ....7.85
Readville,Mass. C14 ....7.85
S.Chicago,Ill. W14 ....7.30
SpringCity,Pa. K3 ....7.75
Struthers,O. Y1 ....7.30
Warren,O. C17 ....7.30
Willimantic,Conn. J5 ....7.80
Waukegan,Ill. A7 ....7.30
Youngstown F3, Y1 ....7.30

BARS, Cold-Finished Carbon (Turned and Ground)
Cumberland,Md.(5) C19..6.55

BARS, Cold-Finished Alloy
Ambridge,Pa. W18 ....8.775
BeaverFalls,Pa. M12,R2 8.775
Bethlehem,Pa. B2 ....8.775
Bridgeport,Conn. C32 ..8.925
Buffalo B5 ....8.775
Camden,N.J. P13 ....8.95
Canton,O. T7 ....8.775
Carnegie,Pa. C12 ....8.775
Chicago W18 ....8.775
Cleveland A7, C20 ....8.775
Detroit B5, P17 ....8.975
Detroit S41 ....8.775
Donora,Pa. A7 ....8.775
Elyria,O. W8 ....8.775
FranklinPark,Ill. N5 ....8.775
Gary,Ind. R2 ....8.775
GreenBay,Wis. F7 ....8.775
Hammond,Ind. J5, L2 ..8.775
Hartford,Conn. R2 ....9.075
Harvey,Ill. B5 ....8.775
Lackawanna,N.Y. B2 ....8.775
LosAngeles P2, S30 ..10.75
Mansfield,Mass. B5 ....9.075
Massillon,O. R2, R8 ....8.775
Midland,Pa. C18 ....8.775
Monaca,Pa. S17 ....8.775
Newark,N.J. W18 ....8.95
Plymouth,Mich. P5 ....8.975
S.Chicago,Ill. W14 ....8.775
SpringCity,Pa. K3 ....8.95
Struthers,O. Y1 ....8.775
Warren,O. C17 ....8.775
Waukegan,Ill. A7 ....8.775
Willimantic,Conn. J5 ....9.075
Worcester,Mass. A7 ....9.075
Youngstown F3, Y1 ....8.775

BARS, Reinforcing (To Fabricators)

AlabamaCity,Ala. R2 ..5.425
Atlanta A11 .....5.425
Birmingham C15 .....5.425
Buffalo R2 .....5.425
Cleveland R2 .....5.425
Ecorse,Mich. G5 .....5.775
Emeryville,Calif. J7 ...6.175
Fairfield,Ala. T2 .....5.425
Fairless,Pa. U5 .....5.575
Fontana,Calif. K1 .....6.125
Ft.Worth,Tex.(4)(26)T4 5.875
Gary,Ind. U5 .....5.425
Houston S5 .....5.675
Ind.Harbor,Ind. I-2, Y1 5.425
Johnstown,Pa. B2 ....5.425
Joliet,Ill. P22 .....5.425
KansasCity,Mo. S5 ...5.675
Kokomo,Ind. C16 .....5.525
Lackawanna,N.Y. B2 ..5.425
LosAngeles B3 .....6.125
Milton,Pa. M18 .....5.575
Minnequa,Colo. C10 ...5.875
Niles,Calif. P1 .....6.125
Pittsburg,Calif. C11 ...6.125
Pittsburgh J5 .....5.425
Portland,Oreg. O4 .....6.175
SandSprings,Okla. S5 ..5.925
Seattle B3, N14 .....6.175
S.Chicago,Ill. R2 .....5.425
S.Duquesne,Pa. U5 ....5.425
S.SanFrancisco B3 ....6.175
SparrowsPoint,Md. B2..5.425
Sterling,Ill.(1) N15 ...5.425
Sterling,Ill. N15 .....5.525
Struthers,O. Y1 .....5.425
Tonawanda,N.Y. B12 ..6.00
Torrance,Calif. C11 ...6.125
Youngstown R2, U5 ..5.425

BARS, Reinforcing (Fabricated; to Consumers)

Boston B2, U8 .....7.65
Chicago U8 .....6.91
Cleveland U8 .....6.89
Houston S5 .....7.35
Johnstown,Pa. B2 .....7.08
KansasCity,Mo. S5 ....7.35
Lackawanna,N.Y. B2 ..6.85
Marion,O. P11 .....6.70
Newark,N.J. U8 .....7.55
Philadelphia U8 .....7.38
Pittsburgh J5, U8 ....7.10
SandSprings,Okla. S5 ...7.60
Seattle B3, N14 .....7.70
SparrowsPt.,Md. B2 ....7.08
St.Paul U8 .....7.92
Williamsport,Pa. S19 ..7.00

BARS, Wrought Iron

Economy,Pa.(S.R.)B14 14.45
Economy,Pa.(D.R.)B14 18.00
Economy(Staybolt)B14. 18.45

RAIL STEEL BARS

ChicagoHts.(3) C2, I-2.5.325
ChicagoHts.(4)(44) I-2.5.425
ChicagoHts.(4) C2 ....5.425
Franklin,Pa.(3) F5 ...5.325
Franklin,Pa.(4) F5 ...5.425
JerseyShore,Pa.(3) J8 ..5.30
Marion,O.(3) P11 .....5.325
Tonawanda(3) B12 ...5.325
Tonawanda(4) B12 ....6.00
Williamsport,Pa.(3) S19.5.50

SHEETS

SHEETS, Hot-Rolled Steel (18 Gage and Heavier)

AlabamaCity,Ala. R2 ..4.925
Allenport,Pa. P7 .....4.925
Ashland,Ky.(8) A10 ..4.925
Cleveland J5, R2 .....4.925
Conshohocken,Pa. A3 ..4.975
Detroit(8) M1 .....5.025
Ecorse,Mich. G5 .....5.025
Fairfield,Ala. T2 .....4.925
Fairless,Pa. U5 .....4.975
Fontana,Calif. K1 ....5.675
Gary,Ind. U5 .....4.925
Geneva,Utah C11 ....5.025
GraniteCity,Ill.(8) G4 ..5.125
Ind.Harbor,Ind. I-2, Y1 4.925
Irvin,Pa. U5 .....4.925
Lackawanna,N.Y. B2 ..4.925
Mansfield,O. E6 .....4.925
Munhall,Pa. U5 .....4.925
Newport,Ky.(8) A2 ....4.925
Niles,O. M21, S3 .....4.925
Pittsburg,Calif. C11 ...5.625
Pittsburgh J5 .....4.925
Portsmouth,O. P12 ....4.925
Riverdale,Ill. A1 .....4.925
Sharon,Pa. S3 .....4.925
S.Chicago,Ill. W14 ....4.925
SparrowsPoint,Md. B2..4.925
Steubenville,O. W10 ...4.925
Warren,O. R2 .....4.925
Weirton,W.Va. W6 ...4.925
Youngstown U5, Y1 ...4.925

SHEETS, H.R. (19) Ga. & Lighter

Niles,O. M21 .....6.05

SHEETS, H.R. Alloy

Gary,Ind. U5 .....8.10
Ind.Harbor,Ind. Y1 ....8.10
Irvin,Pa. U5 .....8.10
Munhall,Pa. U5 .....8.10
Newport,Ky. A2 .....8.10
Youngstown U5, Y1 ....8.10

SHEETS, H.R. (14 Ga. & Heavier) High-Strength, Low-Alloy

Cleveland J5, R2 .....7.275
Conshohocken,Pa. A3 ..7.325
Ecorse,Mich. G5 .....7.375
Fairfield,Ala. T2 .....7.275
Fairless,Pa. U5 .....7.325
Farrell,Pa. S3 .....7.275
Fontana,Calif. K1 ....8.025
Gary,Ind. U5 .....7.275
Ind.Harbor,Ind. I-2, Y1 7.275
Irvin,Pa. U5 .....7.275
Lackawanna(35) B2 ..7.275
Munhall,Pa. U5 .....7.275
Pittsburgh J5 .....7.275
S.Chicago,Ill. U5, W14.7.275
Sharon,Pa. S3 .....7.275
SparrowsPoint(36) B2..7.275
Warren,O. R2 .....7.275
Weirton,W.Va. W6 ...7.275
Youngstown U5, Y1 ..7.275

SHEETS, Hot-Rolled Ingot Iron (18 Gage and Heavier)

Ashland,Ky.(8) A10 ..5.175
Cleveland R2 .....5.675
Warren,O. R2 .....5.675

SHEETS, Cold-Rolled Ingot Iron

Cleveland R2 .....6.80
Middletown,O. A10 ....6.55
Warren,O. R2 .....6.80

SHEETS, Cold-Rolled Steel (Commercial Quality)

AlabamaCity,Ala. R2 ..6.05
Allenport,Pa. P7 .....6.05
Cleveland J5, R2 .....6.05
Conshohocken,Pa. A3 ...6.10
Detroit M1 .....6.05
Ecorse,Mich. G5 .....6.15
Fairfield,Ala. T2 .....6.05
Fairless,Pa. U5 .....6.10
Follansbee,W.Va. F4 ...6.05
Fontana,Calif. K1 .....7.30
Gary,Ind. U5 .....6.05
GraniteCity,Ill. G4 ....6.25
Ind.Harbor,Ind. I-2, Y1.6.05
Irvin,Pa. U5 .....6.05
Lackawanna,N.Y. B2 ..6.05
Mansfield,O. E6 .....6.05
Middletown,O. A10 ....6.05
Newport,Ky. A2 .....6.05
Pittsburg,Calif. C11 ....7.00
Pittsburgh J5 .....6.05
Portsmouth,O. P12 ....6.05
SparrowsPoint,Md. B2 ..6.05
Steubenville,O. W10 ....6.05
Warren,O. R2 .....6.05
Weirton,W.Va. W6 ....6.05
Yorkville,O. W10 .....6.05
Youngstown Y1 .....6.05

SHEETS, Cold-Rolled, High-Strength, Low Alloy

Cleveland J5, R2 .....8.975
Ecorse,Mich. G5 .....9.075
Fairless,Pa. U5 .....9.025
Fontana,Calif. K1 ....10.275
Gary,Ind. U5 .....8.975
IndianaHarbor,Ind. Y1.8.975
Irvin,Pa. U5 .....8.975
Lackawanna(37) B2 ..8.975
Pittsburgh J5 .....8.975
SparrowsPoint(38) B2..8.975
Warren,O. R2 .....8.975
Weirton,W.Va. W6 ....8.975
Youngstown Y1 .....8.975

SHEETS, Culvert	Cu Steel	Cu Fe
Ashland,Ky. A10	6.95	7.20
Canton,O. R2	6.95	7.45
Fairfield T2	6.95	7.20
Gary,Ind. U5	6.95	7.20
GraniteCity,Ill. G4	7.15	...
Ind.Harbor I-2	6.95	7.20
Irvin,Pa. U5	6.95	7.20
Kokomo,Ind. C16	7.05	...
MartinsFry. W10	6.95	7.20
Pitts.,Calif. C11	7.70	...
Pittsburgh J5	6.95	...
SparrowsPt. B2	6.95	...

SHEETS, Culvert—Pure Iron

Ind.Harbor,Ind. I-2 ....7.20

SHEETS, Galvanized Steel Hot-Dipped

AlabamaCity,Ala. R2 ..6.60‡
Ashland,Ky. A10 .....6.60†
Canton,O. R2 .....6.60‡
Dover,O. E6 .....6.60†
Fairfield,Ala. T2 .....6.60†
Gary,Ind. U5 .....6.60†
GraniteCity,Ill. G4 ....6.80*
Ind.Harbor,Ind. I-2 ....6.60†
Irvin,Pa. U5 .....6.60†
Kokomo,Ind. C16 .....6.70‡
MartinsFerry,O. W10 ..6.60*
Middletown,O. A10 ....6.60†
Pittsburg,Calif. C11 ..7.35*
Pittsburgh J5 .....6.60†
SparrowsPt.,Md. B2 ..6.60†
Warren,O. R2 .....6.60†
Weirton,W.Va. W6 ....6.60*

*Continuous and noncontinuous. †Continuous. ‡Noncontinuous.

SHEETS, Well Casing

Fontana,Calif. K1 ....7.175

SHEETS, Galvanized High-Strength, Low-Alloy

Irvin,Pa. U5 .....9.725
SparrowsPt.(39) B2 ...9.725

SHEETS, Galvannealed Steel

Canton,O. R2 .....7.00
Irvin,Pa. U5 .....7.00

SHEETS, Galvanized Ingot Iron (Hot-Dipped Continuous)

Ashland,Ky. A10 .....6.85
Middletown,O. A10 .....6.85

SHEETS, Electrogalvanized

Cleveland(28) R2 .....7.425
Niles,O.(28) R2 .....7.425
Youngstown J5 .....7.275
Weirton,W.Va. W6 ....7.275

SHEETS, Aluminum Coated

Butler,Pa.A10 (type 1). 9.25
Butler,Pa. A10 (type 2). 9.35

SHEETS, Enameling Iron

Ashland,Ky. A10 .....6.625
Cleveland R2 .....6.625
Fairfield,Ala. T2 .....6.625
Gary,Ind. U5 .....6.625
GraniteCity,Ill. G4 ....6.825
Ind.Harbor,Ind. I-2, Y1.6.625
Irvin,Pa. U5 .....6.625
Middletown,O. A10 ....6.625
Niles,O. M21, S3 .....6.625
Youngstown Y1 .....6.625

BLUED STOCK, 29 Gage

Follansbee,W.Va. F4 ..8.65
Ind.Harbor,Ind. I-2 ...8.475
Yorkville,O. W10 .....8.475

SHEETS, Long Terne, Steel (Commercial Quality)

BeechBottom,W.Va.W10 7.00
Gary,Ind. U5 .....7.00
Mansfield,O. E6 .....7.00
Middletown,O. A10 ....7.00
Niles,O. M21, R2, S3...7.00
Weirton,W.Va. W6 .....7.00

SHEETS, Long Terne, Ingot Iron

Middletown,O. A10 .....7.40

Key To Producers

A1 Acme Steel Co.
A2 Acme-Newport Steel Co.
A3 Alan Wood Steel Co.
A4 Allegheny Ludlum Steel
A5 Alloy Metal Wire Div., H. K. Porter Co. Inc.
A6 American Shim Steel Co.
A7 American Steel & Wire Div., U. S. Steel Corp.
A8 Anchor Drawn Steel Co.
A9 Angell Nail & Chaplet
A10 Armco Steel Corp.
A11 Atlantic Steel Co.

B1 Babcock & Wilcox Co.
B2 Bethlehem Steel Co.
B3 Beth. Pac. Coast Steel
B4 Blair Strip Steel Co.
B5 Bliss & Laughlin Inc.
B8 Braeburn Alloy Steel
B9 Brainard Steel Div., Sharon Steel Corp.
B10 E. & G. Brooke, Wickwire Spencer Steel Div., Colo. Fuel & Iron
B11 Buffalo Bolt Co., Div., Buffalo Eclipse Corp.
B12 Buffalo Steel Corp.
B14 A. M. Byers Co.
B15 J. Bishop & Co.

C1 Calstrip Steel Corp.
C2 Calumet Steel Div., Borg-Warner Corp.
C4 Carpenter Steel Co.
C9 Colonial Steel Co.
C10 Colorado Fuel & Iron
C11 Columbia-Geneva Steel
C12 Columbia Steel & Shaft.
C13 Columbia Tool Steel Co.
C14 Compressed Steel Shaft.
C15 Connors Steel Div., H. K. Porter Co. Inc.
C16 Continental Steel Corp.
C17 Copperweld Steel Co.
C18 Crucible Steel Co.
C19 Cumberland Steel Co.
C20 Cuyahoga Steel & Wire
C22 Claymont Plant, Wickwire Spencer Steel Div., Colo. Fuel & Iron
C23 Charter Wire Inc.
C24 G. O. Carlson Inc.
C32 Carpenter Steel of N.Eng.

D2 Detroit Steel Corp.
D3 Dearborn Div., Sharon Steel Corp.
D4 Disston Div., H. K. Porter Co. Inc.
D6 Driver-Harris Co.
D7 Dickson Weatherproof Nail Co.
D8 Damascus Tube Co.
D9 Wilbur B. Driver Co.

E1 Eastern Gas & Fuel Assoc.
E2 Eastern Stainless Steel
E4 Electro Metallurgical Co.
E5 Elliott Bros. Steel Co.
E6 Empire-Reeves Steel Corp.

F2 Firth Sterling Inc.
F3 Fitzsimmons Steel Co.
F4 Follansbee Steel Corp.
F5 Franklin Steel Div., Borg-Warner Corp.
F6 Fretz-Moon Tube Co.
F7 Ft. Howard Steel & Wire
F8 Ft. Wayne Metals Inc.

G4 Granite City Steel Co.
G5 Great Lakes Steel Corp.
G6 Greer Steel Co.
G8 Green River Steel Corp.

H1 Hanna Furnace Corp.
H7 Helical Tube Co.

I-1 Igoe Bros. Inc.
I-2 Inland Steel Co.
I-3 Interlake Iron Corp.
I-4 Ingersoll Steel Div., Borg-Warner Corp.
I-6 Ivins Steel Tube Works
I-7 Indiana Steel & Wire Co.

J1 Jackson Iron & Steel Co.
J3 Jessop Steel Co.
J4 Johnson Steel & Wire Co.
J5 Jones & Laughlin Steel
J6 Joslyn Mfg. & Supply
J7 Judson Steel Corp.
J8 Jersey Shore Steel Co.

K1 Kaiser Steel Corp.
K2 Keokuk Electro-Metals
K3 Keystone Drawn Steel
K4 Keystone Steel & Wire
K7 Kenmore Metals Corp.

L1 Laclede Steel Co.
L2 LaSalle Steel Co.
L3 Latrobe Steel Co.
L6 Lone Star Steel Co.
L7 Lukens Steel Co.

M1 McLouth Steel Corp.
M4 Mahoning Valley Steel
M6 Mercer Pipe Div., Sawhill Tubular Products
M8 Mid-States Steel & Wire
M12 Moltrup Steel Products
M14 McInnes Steel Co.
M16 Md. Fine & Special. Wire
M17 Metal Forming Corp.
M18 Milton Steel Div., Merritt-Chapman&Scott
M21 Mallory-Sharon Metals Corp.
M22 Mill Strip Products Co.

N1 National-Standard Co.
N2 National Supply Co.
N3 National Tube Div., U. S. Steel Corp.
N5 Nelsen Steel & Wire Co.
N6 New England High Carbon Wire Co.
N8 Newman-Crosby Steel
N14 Northwest. Steel Rolling Mills Inc.
N15 Northwestern S.&W. Co.
N20 Neville Ferro Alloy Co.

O4 Oregon Steel Mills

P1 Pacific States Steel Corp.
P2 Pacific Tube Co.
P4 Phoenix Iron & Steel Co., Sub. of Barium Steel Corp.
P5 Pilgrim Drawn Steel
P6 Pittsburgh Coke & Chem.
P7 Pittsburgh Steel Co.
P11 Pollak Steel Co.
P12 Portsmouth Div., Detroit Steel Corp.
P13 Precision Drawn Steel
P14 Pitts. Screw & Bolt Co.
P15 Pittsburgh Metallurgical
P16 Page Steel & Wire Div., American Chain & Cable
P17 Plymouth Steel Corp.
P19 Pitts. Rolling Mills
P20 Prod. Steel Strip Corp.
P22 Phoenix Mfg. Co.
P24 Phil. Steel & Wire Corp.

R2 Republic Steel Corp.
R3 Rhode Island Steel Corp.
R5 Roebling's Sons, John A.
R6 Rome Strip Steel Co.
R8 Reliance Div., Eaton Mfg.
R9 Rome Mfg. Co.
R10 Rodney Metals Inc.

S1 Seneca Wire & Mfg. Co.
S3 Sharon Steel Corp.
S4 Sharon Tube Co.
S5 Sheffield Div., Armco Steel Corp.
S6 Shenango Furnace Co.
S7 Simmons Co.
S8 Simonds Saw & Steel Co.
S12 Spencer Wire Corp.
S13 Standard Forgings Corp.
S14 Standard Tube Co.
S15 Stanley Works
S17 Superior Drawn Steel Co.
S18 Superior Steel Div., Copperweld Steel Co.
S19 Sweet's Steel Co.
S20 Southern States Steel
S23 Superior Tube Co.
S25 Stainless Welded Prod.
S26 Specialty Wire Co. Inc.
S30 Sierra Drawn Steel Corp.
S40 Seneca Steel Service
S41 Stainless Steel Div., J&L Steel Corp.
S42 Southern Elec. Steel Co.

T2 Tenn. Coal & Iron Div., U. S. Steel Corp.
T3 Tenn. Products & Chemical Corp.
T4 Texas Steel Co.
T5 Thomas Strip Div., Pittsburgh Steel Co.
T6 Thompson Wire Co.
T7 Timken Roller Bearing
T9 Tonawanda Iron Div., Am. Rad. & Stan. San.
T13 Tube Methods Inc.
T19 Techalloy Co. Inc.

U4 Universal-Cyclops Steel
U5 United States Steel Corp.
U6 U. S. Pipe & Foundry
U7 Ulbrich Stainless Steels
U8 U.S. Steel Supply Div., U. S. Steel Corp.

V2 Vanadium-Alloys Steel
V3 Vulcan-Kidd Steel Div., H. K. Porter Co.

W1 Wallace Barnes Co.
W2 Wallingford Steel Co.
W3 Washburn Wire Co.
W4 Washington Steel Corp.
W6 Weirton Steel Co.
W8 Western Automatic Machine Screw Co.
W9 Wheatland Tube Co.
W10 Wheeling Steel Corp.
W12 Wickwire Spencer Steel Div., Colo. Fuel & Iron
W13 Wilson Steel & Wire Co.
W14 Wisconsin Steel Div., International Harvester
W15 Woodward Iron Co.
W18 Wyckoff Steel Co.

Y1 Youngstown Sheet & Tube

STRIP

STRIP, Hot-Rolled Carbon

Ala. City, Ala. (27) R2	4.925
Allenport, Pa. P7	4.925
Alton, Ill. L1	5.125
Ashland, Ky. (8) A10	4.925
Atlanta A11	4.925
Bessemer, Ala. T2	4.925
Birmingham C15	4.925
Buffalo (27) R2	4.925
Conshohocken, Pa. A3	4.975
Detroit M1	5.025
Ecorse, Mich. G5	5.025
Fairfield, Ala. T2	4.925
Fontana, Calif. K1	5.675
Gary, Ind. U5	4.925
Ind. Harbor, Ind. I-2, Y1	4.925
Johnstown, Pa. (25) B2	4.925
Lackaw'na, N.Y. (25) B2	4.925
Los Angeles (25) B3	5.675
Minnequa, Colo. C10	6.025
Riverdale, Ill. A1	4.925
San Francisco S7	6.35
Seattle (25) B3	5.925
Seattle N14	6.35
Sharon, Pa. S3	4.925
S. Chicago W14	4.925
S. San Francisco (25) B3	5.675
Sparrows Point, Md. B2	4.925
Sterling, Ill. (1) N15	4.925
Sterling, Ill. N15	5.025
Torrance, Calif. C11	5.675
Warren, O. R2	4.925
Weirton, W. Va. W6	4.925
Youngstown U5	4.925

STRIP, Hot-Rolled Alloy

Carnegie, Pa. S18	8.10
Farrell, Pa. S3	8.10
Gary, Ind. U5	8.10
Houston S5	8.35
Ind. Harbor, Ind. Y1	8.10
Kansas City, Mo. S5	8.35
Los Angeles B3	9.30
Lowellville, O. S3	8.10
Newport, Ky. A2	8.10
Sharon, Pa. A2, S3	8.10
S. Chicago, Ill. W14	8.10
Youngstown U5, Y1	8.10

STRIP, Hot-Rolled High-Strength, Low-Alloy

Bessemer, Ala. T2	7.325
Conshohocken, Pa. A3	7.325
Ecorse, Mich. G5	7.425
Fairfield, Ala. T2	7.325
Farrell, Pa. S3	7.325
Gary, Ind. U5	7.325
Ind. Harbor, Ind. I-2, Y1	7.325
Lackawanna, N.Y. B2	7.325
Los Angeles (25) B3	8.075
Seattle (25) B3	8.325
Sharon, Pa. S3	7.325
S. Chicago, Ill. W14	7.325
S. San Francisco (25) B3	8.075
Sparrows Point, Md. B2	7.325
Warren, O. R2	7.325
Weirton, W. Va. W6	7.325
Youngstown U5, Y1	7.325

STRIP, Hot-Rolled Ingot Iron

Ashland, Ky. (8) A10	5.175
Warren, O. R2	5.675

STRIP, Cold-Rolled Carbon

Anderson, Ind. G6	7.15
Baltimore T6	7.15
Boston T6	7.70
Buffalo S40	7.15
Cleveland A7, J5	7.15
Dearborn, Mich. D3	7.25
Detroit D2, M1, P20	7.25
Dover, O. G6	7.15
Ecorse, Mich. G5	7.25
Evanston, Ill. M22	7.25
Follansbee, W. Va. F4	7.15
Fontana, Calif. K1	9.00
Franklin Park, Ill. T6	7.25
Ind. Harbor, Ind. Y1	7.15
Indianapolis J5	7.30
Los Angeles J5	9.05
Los Angeles C1	9.20
New Bedford, Mass. R10	7.60
New Britain, Conn. S15	7.60
New Castle, Pa. B4, E5	7.15
New Haven, Conn. D2	7.60
New Kensington, Pa. A6	7.15
Pawtucket, R.I. R3	7.80
Pawtucket, R.I. N8	7.70
Philadelphia P24	7.70
Pittsburgh J5	7.15
Riverdale, Ill. A1	7.25
Rome, N.Y. (32) R6	7.15
Sharon, Pa. S3	7.15
Trenton, N.J. (31) R5	8.60
Wallingford, Conn. W2	7.60
Warren, O. R2, T5	7.15
Weirton, W. Va. W6	7.15
Worcester, Mass. A7	7.70
Youngstown J5, Y1	7.15

STRIP, Cold-Rolled Alloy

Boston T6	15.40
Carnegie, Pa. S18	15.05
Cleveland A7	15.05
Dover, O. G6	15.05
Farrell, Pa. S3	15.05
Franklin Park, Ill. T6	15.05
Harrison, N.J. C18	15.05
Indianapolis J5	15.20
Lowellville, O. S3	15.05
Pawtucket, R.I. N8	15.40
Riverdale, Ill. A1	15.05
Sharon, Pa. S3	15.05
Worcester, Mass. A7	15.35
Youngstown J5	15.05

STRIP, Cold-Rolled High-Strength, Low-Alloy

Cleveland A7	10.45
Dearborn, Mich. D3	10.60
Dover, O. G6	10.45
Ecorse, Mich. G5	10.60
Farrell, Pa. S3	10.50
Ind. Harbor, Ind. Y1	10.65
Sharon, Pa. S3	10.50
Warren, O. R2	10.45
Weirton, W. Va. W6	10.50
Youngstown Y1	10.65

STRIP, Cold-Rolled Ingot Iron

Warren, O. R2	7.90

STRIP, C.R. Electrogalvanized

Cleveland A7	7.15*
Dover, O. G6	7.15*
Evanston, Ill. M22	7.25*
Riverdale, Ill. A1	7.25*
Warren, O. B9, T5	7.15*
Worcester, Mass. A7	7.70*
Youngstown J5	7.15*

*Plus galvanizing extras.

STRIP, Galvanized (Continuous)

Sharon, Pa. S3	7.275

TIGHT COOPERAGE HOOP

Atlanta A11	5.65
Riverdale, Ill. A1	5.50
Sharon, Pa. S3	5.35
Youngstown U5	5.35

STRIP, Cold-Finished Spring Steel (Annealed)	0.26-0.40C	0.41-0.60C	0.61-0.80C	0.81-1.05C	1.06-1.35C
Baltimore T6	9.50	10.70	12.90	15.90	18.85
Boston T6	9.50	10.70	12.90	15.90	18.85
Bristol, Conn. W1	...	10.70	12.90	16.10	19.30
Carnegie, Pa. S18	8.95	10.40	12.60	15.60	....
Cleveland A7	8.95	10.40	12.60	15.60	18.55
Dearborn, Mich. D3	9.05	10.50	12.70	....	....
Detroit D2	9.05	10.50	12.70	15.70	....
Dover, O. G6	8.95	10.40	12.60	15.60	18.55
Evanston, Ill. M22	8.95	10.40	12.60	15.60	....
Fostoria, O. S1	10.05	10.40	12.60	15.60	....
Franklin Park, Ill. T6	9.05	10.40	12.60	15.60	18.55
Harrison, N.J. C18	....	....	12.90	16.10	19.30
Indianapolis J5	9.10	10.55	12.60	15.60	18.55
Los Angeles C1	11.15	12.60	14.80	17.80	....
Los Angeles J5	11.15	12.60	14.80	....	....
New Britain, Conn. S15	*9.40*	*10.70*	*12.90*	*15.90*	*18.85*
New Castle, Pa. B4, E5	8.95	10.40	12.60	15.60	....
New Haven, Conn. D2	9.40	10.70	12.90	15.90	....
New Kensington, Pa. A6	8.95	10.40	12.60	15.60	....
New York W3	....	10.70	12.90	16.10	19.30
Pawtucket, R.I. N8	9.50	10.70	12.90	15.90	18.85
Riverdale, Ill. A1	9.05	10.40	12.60	15.60	18.55
Rome, N.Y. (32) R6	8.95	10.40	12.60	15.60	18.55
Sharon, Pa. S3	8.95	10.40	12.60	15.60	18.55
Trenton, N.J. R5	....	10.70	12.90	16.10	19.30
Wallingford, Conn. W2	9.40	10.70	12.90	15.90	18.75
Warren, O. T5	8.95	10.40	12.60	15.60	18.55
Worcester, Mass. A7, T6	9.50	10.70	12.90	15.90	18.85
Youngstown J5	8.95	10.40	12.60	15.60	18.55

Spring Steel (Tempered)			Up to 0.80C	0.81-1.05C	1.06-1.35C
Bristol, Conn. W1	...	...	18.10	21.95	26.30
Butfalo W12	...	...	18.10	....	....
Fostoria, O. S1	...	...	18.30	22.15	....
Franklin Park, Ill. T6	...	...	18.45	22.30	26.65
Harrison, N.J. C18	...	...	18.10	21.95	26.30
New York W3	...	...	18.10	21.95	26.30
Palmer, Mass. W12	...	...	18.10	....	....
Trenton, N.J. R5	...	...	18.10	21.95	26.30
Worcester, Mass. A7, T6	...	...	18.10	21.95	26.30
Youngstown J5	...	...	18.45	22.30	26.65

SILICON STEEL

H.R. SHEETS (22 Ga., cut lengths)	Field	Armature	Electric	Motor	Dynamo
Beech Bottom, W. Va. W10	....	....	11.80	12.90	13.95
Mansfield, O. E6	9.625	11.10	11.80	12.90	13.95
Newport, Ky. A2	9.625	11.10	11.80	12.90	13.95
Niles, O. M21, S3	9.625	11.10	11.80	12.90	....
Vandergrift, Pa. U5	....	11.10	11.80	12.90	13.95
Warren, O. R2	9.625	11.10	11.80	12.90	....
Zanesville, O. A10	....	11.10	11.80	12.90	13.95

C.R. COILS & CUT LENGTHS (22 Ga.) Fully Processed (Semiprocessed ½c lower)	Field	Armature	Electric	Motor	Dynamo
Beech Bottom, W. Va. W10	....	11.35	12.05	13.15	14.20
Brackenridge, Pa. A4	....	....	12.05	13.15	14.20
Granite City, Ill. G4	9.825*	11.05*	11.75*	12.85*	....
Indiana Harbor, Ind. I-2	9.625†	10.85*	11.55*	12.65*	....
Mansfield, O. E6	9.625*	11.35	12.05	13.15	14.20
Vandergrift, Pa. U5	9.625*	11.35	12.05	13.15	14.20
Warren, O. R2	9.625*	11.35	12.05	13.15	14.20
Zanesville, O. A10	....	11.35†	12.05	13.15	14.20

	Stator
Vandergrift, Pa. U5	7.85

H.R. SHEETS (22 Ga., cut lengths)	T-72	T-65	T-58	T-52
Beech Bottom, W. Va. W10	15.00	15.55	16.05	17.10
Vandergrift, Pa. U5	15.00	15.55	16.05	17.10
Zanesville, O. A10	15.00	15.55	16.05	17.10

C.R. COILS & CUT LENGTHS (22 Ga.)	Grain Oriented T-100	T-90	T-80	T-73	T-66	T-72
Brackenridge, Pa. A4	17.60	17.60	19.20	19.70	20.20	15.25††
Butler, Pa. A10	....	....	19.20	19.70	20.20	....
Vandergrift, Pa. U5	16.60	17.60	19.20	19.70	20.20	15.25**
Warren, O. R2	....	....	....	....	....	15.25‡

*Semiprocessed. †Fully processed only. ‡Coils, annealed, semiprocessed ½c lower. **Cut lengths, ¾-cent lower. ††Coils only.

TIN MILL PRODUCTS

TIN PLATE, Electrolytic (Base Box)	0.25 lb	0.50 lb	0.75 lb
Aliquippa, Pa. J5	$8.75	$9.00	$9.40
Fairfield, Ala. T2	8.85	9.10	9.50
Fairless, Pa. U5	8.85	9.10	9.50
Fontana, Calif. K1	9.50	9.75	10.15
Gary, Ind. U5	8.75	9.00	9.40
Granite City, Ill. G4	8.85	9.10	9.50
Indiana Harbor, Ind. I-2, Y1	8.75	9.00	9.40
Irvin, Pa. U5	8.75	9.00	9.40
Niles, O. R2	8.75	9.00	9.40
Pittsburg, Calif. C11	9.50	9.75	10.15
Sparrows Point, Md. B2	8.85	9.10	9.50
Weirton, W. Va. W6	8.75	9.00	9.40
Yorkville, O. W10	8.75	9.00	9.40

ELECTROTIN (22-27 Gage; Dollars per 100 lb)			
Aliquippa, Pa. J5	7.725	7.925	....
Niles, O. R2	7.725	7.925	8.125

TIN PLATE, American	1.25 lb	1.50 lb
Aliquippa, Pa. J5	$10.05	$10.30
Fairfield, Ala. T2	10.15	10.40
Fairless, Pa. U5	10.15	10.40
Fontana, Calif. K1	10.80	11.05
Gary, Ind. U5	10.05	10.30
Ind. Harb. Y1	10.05	10.30
Pitts., Calif. C11	10.80	11.05
Sp. Pt., Md. B2	10.15	10.40
Weirton, W. Va. W6	10.05	10.30
Yorkville, O. W10	10.05	10.30

BLACK PLATE (Base Box)	
Aliquippa, Pa. J5	$7.85
Fairfield, Ala. T2	7.95
Fairless, Pa. U5	7.95
Fontana, Calif. K1	8.60
Gary, Ind. U5	7.85
Granite City, Ill. G4	7.95
Ind. Harbor, Ind. I-2, Y1	7.85
Irvin, Pa. U5	7.85
Niles, O. R2	7.85
Pittsburg, Calif. C11	8.60
Sparrows Point, Md. B2	7.95
Weirton, W. Va. W6	7.85
Yorkville, O. W10	7.85

HOLLOWARE ENAMELING

Black Plate (29 Gage)	
Aliquippa, Pa. J5	$7.50
Gary, Ind. U5	7.50
Granite City, Ill. G4	7.60
Ind. Harbor, Ind. Y1	7.50
Irvin, Pa. U5	7.50
Yorkville, O. W10	7.50

MANUFACTURING TERNES

(Special Coated, Base Box)	
Gary, Ind. U5	$9.70
Irvin, Pa. U5	9.70

ROOFING SHORT TERNES

(8 lb Coated, Base Box)	
Gary, Ind. U5	$11.25

WIRE

WIRE, Manufacturers Bright, Low Carbon

Alabama City, Ala. R2	7.65
Aliquippa, Pa. J5	7.65
Alton, Ill. L1	7.85
Atlanta A11	7.65
Bartonville, Ill. K4	7.75
Buffalo W12	7.65
Chicago W13	7.65
Cleveland A7, C20	7.65
Crawfordsville, Ind. M8	7.75
Donora, Pa. A7	7.65
Duluth A7	7.65
Fairfield, Ala. T2	7.65
Fostoria, O. (24) S1	7.75
Houston S5	7.90
Jacksonville, Fla. M8	8.00
Johnstown, Pa. B2	7.65
Joliet, Ill. A7	7.65
Kansas City, Mo. S5	7.90
Kokomo, Ind. C16	7.75
Los Angeles B3	8.60
Minnequa, Colo. C10	7.90
Monessen, Pa. P7, P16	7.65
N. Tonawanda, N.Y. B11	7.65
Palmer, Mass. W12	7.95
Pittsburg Calif. C11	8.60
Portsmouth, O. P12	7.65
Rankin, Pa. A7	7.65
S. Chicago, Ill. R2	7.65
S. San Francisco C10	8.60
Sparrows Point, Md. B2	7.75
Sterling, Ill. (1) N15	7.65
Sterling, Ill. N15	7.75
Struthers, O. Y1	7.65
Waukegan, Ill. A7	7.65
Worcester, Mass. A7	7.95

WIRE, Gal'd., for ACSR

Bartonville, Ill. K4	12.65
Buffalo W12	12.65
Cleveland A7	12.65
Donora, Pa. A7	12.65
Duluth A7	12.65
Johnstown, Pa. B2	12.65
Minnequa, Colo. C10	12.775
Monessen, Pa. P7, P16	12.65
Muncie, Ind. I-7	12.85
New Haven, Conn. A7	12.95
Palmer, Mass. W12	12.95
Pittsburg, Calif. C11	13.45
Portsmouth, O. P12	12.65
Roebling, N.J. R5	12.95
Sparrows Pt., Md. B2	12.75
Struthers, O. Y1	12.65
Trenton, N.J. A7	12.95
Waukegan, Ill. A7	12.65
Worcester, Mass. A7	12.95

WIRE, Upholstery Spring

Aliquippa, Pa. J5	9.30
Alton, Ill. L1	9.50
Buffalo W12	9.30
Cleveland A7	9.30
Donora, Pa. A7	9.30
Duluth A7	9.30
Johnstown, Pa. B2	9.30
Kansas City, Mo. S5	9.55
Los Angeles B3	10.25
Minnequa, Colo. C10	9.50
Monessen, Pa. P7, P16	9.30
New Haven, Conn. A7	9.60
Palmer, Mass. W12	9.60
Pittsburg, Calif. C11	10.25
Portsmouth, O. P12	9.30
Roebling, N.J. R5	9.60
S. Chicago, Ill. R2	9.30
S. San Francisco C10	10.25
Sparrows Pt., Md. B2	9.40
Struthers, O. Y1	9.30
Trenton, N.J. A7	9.60
Waukegan, Ill. A7	9.30
Worcester, Mass. A7	9.60

WIRE, MB Spring, High-Carbon

Aliquippa, Pa. J5	9.30
Alton, Ill. L1	9.50
Bartonville, Ill. K4	9.40
Buffalo W12	9.30
Cleveland A7	9.30
Donora, Pa. A7	9.30
Duluth A7	9.30
Fostoria, O. S1	9.35
Johnstown, Pa. B2	9.30
Kansas City, Mo. S5	9.55
Los Angeles B3	10.25
Milbury, Mass. (12) N6	9.60
Minnequa, Colo. C10	9.50
Monessen, Pa. P7, P16	9.30
Muncie, Ind. I-7	9.50
Palmer, Mass. (12) W12	9.60
Pittsburg, Calif. C11	10.25
Portsmouth, O. P12	9.30
Roebling, N.J. R5	9.60
S. Chicago, Ill. R2	9.30
S. San Francisco C10	10.25
Sparrows Pt., Md. B2	9.40
Struthers, O. Y1	9.30
Trenton, N.J. A7	9.60
Waukegan, Ill. A7	9.30
Worcester A7, J4, T6	9.60

WIRE, Fine & Weaving (8" Coils)

Alton, Ill. L1	15.80
Bartonville, Ill. K4	15.70
Buffalo W12	15.60
Chicago W13	15.60
Cleveland A7	15.60
Crawfordsville, Ind. M8	15.70
Fostoria, O. S1	15.60
Houston S5	15.85
Jacksonville, Fla. M8	15.95
Johnstown, Pa. B2	15.60
Kansas City, Mo. S5	15.85
Kokomo, Ind. C16	15.60
Minnequa, Colo. C10	15.85
Monessen, Pa. P16	15.60
Muncie, Ind. I-7	15.80
Palmer, Mass. W12	15.90
S. San Francisco C10	16.45
Waukegan, Ill. A7	15.60
Worcester, Mass. A7, T6	15.90

ROPE WIRE (A)

Bartonville, Ill. K4	12.75
Buffalo W12	12.75
Fostoria, O. S1	12.75
Johnstown, Pa. B2	12.75
Monessen, Pa. P7	12.75
Muncie, Ind. I-7	12.95
Palmer, Mass. W12	13.05
Portsmouth, O. P12	12.75
Roebling, N.J. R5	13.05
Sparrows Pt., Md. B2	12.85
Struthers, O. Y1	12.75
Worcester, Mass. J4	13.05

(A) Plow and Mild Plow; add 0.25c for Improved Plow

WIRE, Tire Bead

Bartonville,Ill. K4	16.55
Monessen,Pa. P16	16.55
Roebling,N.J. R5	17.05

WIRE, Cold-Rolled Flat

Anderson,Ind. G6	11.65
Baltimore T6	11.95
Boston T6	11.95
Buffalo W12	11.65
Chicago W13	11.75
Cleveland A7	11.65
Crawfordsville,Ind. M8	11.65
Dover,O. G6	11.65
Fostoria,O. S1	11.65
FranklinPark,Ill. T6	11.75
Rokomo,Ind. C16	11.65
Massillon,O. R8	11.65
Milwaukee C23	11.85
Monessen,Pa. P7, P16	11.65
Palmer,Mass. W12	11.95
Pawtucket,R.I. N8	11.95
Philadelphia P24	11.95
Riverdale,Ill. A1	11.75
Rome,N.Y. R6	11.65
Sharon,Pa. S3	11.65
Trenton,N.J. R5	11.95
Warren,O. B9	11.65
Worcester,Mass. A7, T6	11.95

NAILS, Stock

	Col.
AlabamaCity,Ala. R2	173
Aliquippa,Pa. J5	173
Atlanta A11	175
Bartonville,Ill. K4	175
Chicago W13	173
Cleveland A9	173
Crawfordsville,Ind. M8	175
Donora,Pa. A7	173
Duluth A7	173
Fairfield,Ala. T2	175
Houston S5	178
Jacksonville,Fla. M8	175
Johnstown,Pa. B2	173
Joliet,Ill. A7	173
KansasCity,Mo. S5	178
Kokomo,Ind. C16	175
Minnequa,Colo. C10	178
Monessen,Pa. P7	173
Pittsburg,Calif. C11	192
Rankin,Pa. A7	173
S.Chicago,Ill. R2	173
SparrowsPt.,Md. B2	175
Sterling,Ill.(7) N15	175
Worcester,Mass. A7	179

(To Wholesalers; per cwt)

Galveston,Tex. D7 ..... $9.10

NAILS, Cut (100 lb keg)
To Dealers (33)

Conshohocken,Pa. A3	$9.80
Wheeling,W.Va. W10	9.80

POLISHED STAPLES

	Col.
AlabamaCity,Ala. R2	175
Aliquippa,Pa. J5	175
Atlanta A11	177
Bartonville,Ill. K4	177
Crawfordsville,Ind. M8	177
Donora,Pa. A7	175
Duluth A7	177
Fairfield,Ala. T2	175
Houston S5	180
Jacksonville,Fla. M8	177
Johnstown,Pa. B2	175
Joliet,Ill. A7	175
KansasCity,Mo. S5	180
Kokomo,Ind. C16	177
Minnequa,Colo. C10	180
Pittsburg,Calif. C11	194
Rankin,Pa. A7	175
S.Chicago,Ill. R2	175
SparrowsPt.,Md. B2	177
Sterling,Ill.(7) N15	175
Worcester,Mass. A7	181

TIE WIRE, Automatic Baler (14½ Ga.)(Per 97 lb Net Box)
Coil No. 3150

AlabamaCity,Ala. R2	$10.26
Atlanta A11	10.36
Bartonville,Ill. K4	10.36
Buffalo W12	10.26
Chicago W13	10.26
Crawfordsville,Ind. M8	10.36
Donora,Pa. A7	10.26
Duluth A7	10.26
Fairfield,Ala. T2	10.26
Houston S5	10.51
Jacksonville,Fla. M8	10.36
Johnstown,Pa. B2	10.26
Joliet,Ill. A7	10.26
KansasCity,Mo. S5	10.51
Kokomo,Ind. C16	10.36
LosAngeles B3	11.05
Minnequa,Colo. C10	10.51
Pittsburg,Calif. C11	11.04
S.Chicago,Ill. R2	10.26
S.SanFrancisco C10	11.04
SparrowsPt.,Md. B2	10.36
Sterling,Ill. (37) N15	10.36

Coil No. 6500 Stand.

AlabamaCity,Ala. R2	$10.60
Atlanta A11	10.70
Bartonville,Ill. K4	10.70
Buffalo W12	10.60
Chicago W13	10.60
Crawfordsville,Ind. M8	10.70
Donora,Pa. A7	10.60
Duluth A7	10.60
Fairfield,Ala. T2	10.60
Houston S5	10.85
Jacksonville,Fla. M8	10.70
Johnstown,Pa. B2	10.60
Joliet,Ill. A7	10.60
KansasCity,Mo. S5	10.85
Kokomo,Ind. C16	10.70
LosAngeles B3	11.40
Minnequa,Colo. C10	10.85
Pittsburg,Calif. C11	11.40
S.Chicago,Ill. R2	10.60
S.SanFrancisco C10	11.40
SparrowsPt.,Md. B2	10.70
Sterling,Ill.(37) N15	10.70

Coil No. 6500 Interim

AlabamaCity,Ala. R2	$10.65
Atlanta A11	10.75
Bartonville,Ill. K4	10.75
Buffalo W12	10.65
Chicago W13	10.65
Crawfordsville,Ind. M8	10.75
Donora,Pa. A7	10.65
Duluth A7	10.65
Fairfield,Ala. T2	10.65
Houston S5	10.90
Jacksonville,Fla. M8	10.75
Johnstown,Pa. B2	10.65
Joliet,Ill. A7	10.65
KansasCity,Mo. S5	10.90
Kokomo,Ind. C16	10.75
LosAngeles B3	11.45
Minnequa,Colo. C10	10.90
Pittsburg,Calif. C11	11.45
S.Chicago,Ill. R2	10.65
S.SanFrancisco C10	11.45
SparrowsPt.,Md. B2	10.75
Sterling,Ill.(37) N15	10.75

BALE TIES, Single Loop

	Col.
AlabamaCity,Ala. R2	212
Atlanta A11	214
Bartonville,Ill. K4	214
Crawfordsville,Ind. M8	214
Donora,Pa. A7	212
Duluth A7	212
Fairfield,Ala. T2	212
Houston S5	217
Jacksonville,Fla. M8	214
Joliet,Ill. A7	212
KansasCity,Mo. S5	217
Kokomo,Ind. C16	214
Minnequa,Colo. C10	217
Pittsburg,Calif. C11	236
S.SanFrancisco C10	236
SparrowsPt.,Md. B2	214
Sterling,Ill.(7) N15	214

FENCE POSTS

Birmingham C15	172
ChicagoHts.,Ill. C2, I-2	172
Duluth A7	172
Franklin,Pa. F5	172
Huntington,W.Va. C15	172
Johnstown,Pa. B2	172
Marion,O. P11	172
Minnequa,Colo. C10	177
Sterling,Ill.(1) N15	172
Tonawanda,N.Y. B12	174

WIRE, Barbed

	Col.
AlabamaCity,Ala. R2	193**
Aliquippa,Pa. J5	190§
Atlanta A11	198*
Bartonville,Ill. K4	198
Crawfordsville,Ind. M8	198
Donora,Pa. A7	193†
Duluth A7	193†
Fairfield,Ala. T2	193†
Houston S5	198**
Jacksonville,Fla. M8	198
Johnstown,Pa. B2	196§
Joliet,Ill. A7	193†
KansasCity,Mo. S5	198**
Kokomo,Ind. C16	195†
Minnequa,Colo. C10	198**
Monessen,Pa. P7	196§
Pittsburg,Calif. C11	213†
Rankin,Pa. A7	193†
S.Chicago,Ill. R2	193**
S.SanFrancisco C10	213*
SparrowsPoint,Md. B2	198§
Sterling,Ill.(7) N15	198††

WOVEN FENCE, 9-15 Ga. Col.

Ala.City,Ala. R2	187**
Aliq'ppa,Pa. 9-14½ga. J5	190§
Atlanta A11	192*
Bartonville,Ill. K4	192
Crawfordsville,Ind. M8	192
Donora,Pa. A7	187†
Duluth A7	187†
Fairfield,Ala. T2	187†
Houston S5	192**
Jacksonville,Fla. M8	192
Johnstown,Pa.(43) B2	190§
Joliet,Ill. A7	187†
KansasCity,Mo. S5	192**
Kokomo,Ind. C16	189†
Minnequa,Colo. C10	192**
Pittsburg,Calif. C11	210†
Rankin,Pa. A7	187†
S.Chicago,Ill. R2	187**
Sterling,Ill.(7) N15	192††

WIRE (16 gage)	An'ld Galv. Stone	Galv. Stone
Ala.City,Ala. R2	17.15	18.70**
Aliq'ppa,Pa. J5	17.15	18.95
Bartonville K4	17.25	19.05
Cleveland A7	17.15	....
Crawf'dsville M8	17.25	19.05
Fostoria,O. S1	17.65	19.20†
Houston S5	17.40	18.95**
Jacksonville M8	17.25	19.05
Johnstown B2	17.15	18.95§
Kan.City,Mo. S5	17.40	....
Kokomo C16	17.25	18.80†
Minnequa C10	17.40	18.95**
P'lm'r,Mass. W12	17.45	19.00†
Pitts.,Calif. C11	17.50	19.05†
SparrowsPt. B2	17.25	19.05§
Sterling(37)N15	17.25	19.05††
Waukegan A7	17.15	18.70†
Worcester A7	17.45	....

WIRE, Merchant Quality

(6 to 8 gage)	An'ld Galv.	Galv.
Ala.City,Ala. R2	8.65	9.20**
Aliquippa J5	8.65	9.325§
Atlanta(48) A11	8.75	9.425*
Bartonville(48) K4	8.75	9.425
Buffalo W12	8.65	9.20†
Cleveland A7	8.65	....
Crawfordsville M8	8.75	9.425
Donora,Pa. A7	8.65	9.20†
Duluth A7	8.65	9.20†
Fairfield T2	8.65	9.20†
Houston(48) S5	8.90	9.45**
Jacks'ville,Fla. M8	8.75	9.425
Johnstown B2(48)	8.65	J.325§
Joliet,Ill. A7	8.65	9.20†
Kans.City(48) S5	8.90	9.45**
Kokomo C16	8.75	9.30†
LosAngeles B3	9.60	10.275§
Minnequa C10	8.90	9.45**
Monessen P7(48)	8.65	9.225§
Palmer,Mass. W12	8.95	9.50†
Pitts.Calif. C11	9.60	10.15†
Rankin,Pa. A7	8.65	9.20†
S.Chicago R2	8.65	9.20**
S.SanFran. C10	9.60	10.15**
Spar'wsPt.B2(48)	8.75	9.425§
Sterling(48) N15	8.90	9.575††
Sterling(1) (48)	8.80	9.475††
Struthers,O. Y1	8.65	9.30†
Worcester,Mass.A7	8.95	9.50†

Based on zinc price of: *13.50. †5c. §10c. ‡Less than 10c. ††10.50c. **Subject to zinc equalization extras.

FASTENERS

(Base discounts, full container quantity, per cent off list, f.o.b. mill)

BOLTS

Carriage, Machine Bolts
Full Size Body (cut thread)

½ in. and smaller:	
6 in. and shorter ...	49.0
Longer than 6 in. ..	39.0
⅝ in. thru 1 in.:	
6 in. and shorter ...	39.0
Longer than 6 in. ..	35.0
1⅛ in. and larger:	
All lengths	35.0

Undersized Body (rolled thread)

½ in. and smaller:	
6 in. and shorter ...	49.0

Carriage, Machine, Lag Bolts
Hot Galvanized:

½ in. and smaller:	
6 in. and shorter ...	29.0
Longer than 6 in. ..	15.0
⅝ in. and larger:	
All lengths	12.0

Lag Bolts (all diam.)

6 in. and shorter ...	49.0
Longer than 6 in. ..	39.0

Plow and Tap Bolts

½ in. and smaller by 6 in. and shorter..	49.0
Larger than ½ in. or longer than 6 in. .	39.0

Blank Bolts 39.0
Step, Elevator, Tire Bolts 49.0
Stove Bolts, Slotted:

⅛ to ¼ in. incl.. 3 in. and shorter.	55.0
5/16 to ½ in., inclusive	55.0

NUTS

Reg. & Heavy Square Nuts:
All sizes 55.5
Square Nuts, Reg. & Heavy, Hot Galvanized:
All sizes 41.0
Hex Nuts, Reg. & Heavy, Hot Pressed:

¾ in. and smaller..	60.5
⅞ in. to 1 in., incl..	55.5
1⅛ in to 1½ in., incl.	58.5
1⅝ in. and larger ..	53.5

Hex Nuts, Reg. & Heavy, Cold Punched:

¾ in. and smaller..	60.5
⅞ in. to 1½ in., incl.	55.5
1⅝ in. and larger ..	53.5

Hex Nuts, All Types, Hot Galvanized:

¾ in. and smaller ..	46.5
⅞ in. to 1 in., incl..	41.5
1⅛ in to 1½ in., incl.	46.5

Hex Nuts, Semifinished, Heavy (Incl. Slotted):

¾ in. and smaller ..	60.5
⅞ in. to 1½ in., incl.	55.5
1⅝ in. and larger ..	53.5

Hex Nuts, Finished (Incl. Slotted and Castellated):

1 in. and smaller ..	63.0
1⅛ in. to 1½ in., incl.	59.0
1⅝ in. and larger..	53.5

Semifinished Hex Nuts, Reg. (Incl. Slotted):

⅝ in. and smaller..	60.5
⅞ in. to 1 in., incl.	63.0
1⅛ to 1½ in., incl.	59.0
1⅝ in. and larger...	53.5

CAP AND SETSCREWS
(Base discounts, packages, per cent off list, f.o.b. mill)
Hex Head Capscrews, Coarse or Fine Thread, Bright:
6 in. and shorter:

⅝ in. and smaller..	40.0
¾, ⅞, and 1 in. diam.	22.0
Longer than 6 in.:	
⅝ in. and smaller..	8.0
¾, ⅞, and 1 in. diam.	+ 6.0

High Carbon, Heat Treated:
6 in. and shorter:

⅝ in. and smaller..	26.0
¾, ⅞, and 1 in. diam.	3.0
Longer than 6 in.:	
⅝ in. and smaller..	+13.0
¾, ⅞, and 1 in. diam.	+32.0

Flat Head Capscrews:
¾ in. and smaller.. +76.0
Setscrews, Square Head, Cup Point, Coarse Thread:
Through 1 in. diam.:

6 in. and shorter..	Net
Longer than 6 in..	+23

RIVETS

F.o.b. Cleveland and/or freight equalized with Pittsburgh, f.o.b. Chicago and/or freight equalized with Birmingham except where equalization is too great.
Structural ½ in., larger 12.25
5/16 in. under: List less 19%

BOILER TUBES

Net base c.l. prices, dollars per 100 ft, mill; minimum wall thickness, cut lengths 10 to 24 ft. inclusive.

O.D. In.	B.W. Gage	Seamless H.R.	Seamless C.D.	Elec. Weld H.R.
1	13	....	25.98	23.54
1¼	13	....	30.78	23.36
1½	13	29.03	34.01	25.83
1¾	13	34.29	40.18	30.51
2	13	38.44	45.05	34.20
2¼	13	43.29	50.75	38.52
2¼	12	46.99	55.06	41.81
2½	12	51.76	60.65	46.05
2¾	12	56.04	65.67	49.88
3	12	59.76	70.03	53.19

RAILWAY MATERIALS

Rails	Standard No. 1	Standard No. 2	Tee Rails All No. 2	Tee Rails 60-lb Under
Bessemer,Pa. U5	5.525	5.425	....	6.50
Ensley,Ala. T2	5.525	5.425	....	6.50
Fairfield,Ala. T2	....	....	....	6.50
Gary,Ind. U5	5.525	5.425	....	....
Huntington,W.Va. C15	....	....	....	6.50
IndianaHarbor,Ind. I-2	5.525	5.425	5.475	....
Johnstown,Pa. B2	....	....	...(16)	6.50
Lackawanna,N.Y. B2	5.525	5.425	....	6.50
Minnequa,Colo. C10	5.525	5.425	....	7.00
Steelton,Pa. B2	5.525	5.425	....	....
Williamsport,Pa. S19	....	....	....	6.50

TIE PLATES

Fairfield,Ala. T2	6.60
Gary,Ind. U5	6.60
Ind.Harbor,Ind. I-2	6.60
Lackawanna,N.Y. B2	6.60
Minnequa,Colo. C10	6.60
Seattle B3	6.75
Steelton,Pa. B2	6.60
Torrance,Calif. C11	6.75

JOINT BARS

Bessemer,Pa. U5	6.975
Fairfield,Ala. T2	6.975
Ind.Harbor,Ind. I-2	6.975
Joliet,Ill. U5	6.975
Lackawanna,N.Y. B2	6.975
Minnequa,Colo. C10	6.975
Steelton,Pa. B2	6.975

AXLES

Ind.Harbor,Ind. S13	8.775
Johnstown,Pa. B2	8.775

TRACK BOLTS, Untreated

Cleveland R2	14.75
KansasCity,Mo. S5	14.75
Lebanon,Pa. B2	14.75
Minnequa,Colo. C10	14.75
Pittsburgh P14	14.75
Seattle B3	15.25

SCREW SPIKES

Lebanon,Pa. B2	14.50

STANDARD TRACK SPIKES

Fairfield,Ala. T2	9.75
Ind.Harbor,Ind. I-2, Y1	9.75
KansasCity,Mo. S5	9.75
Lebanon,Pa. B2	9.75
Minnequa,Colo. C10	9.75
Pittsburgh J5	9.75
Seattle B3	10.25
S.Chicago,Ill. R2	9.75
Struthers,O. Y1	9.75
Youngstown R2	9.75

Footnotes

(1) Chicago base.
(2) Angles, flats, bands.
(3) Merchant.
(4) Reinforcing.
(5) 1⅛ to under 1 7/16 in.; 1 7/16 to under 1 15/16 in., 6.70c; 1 15/16 to 8 in., inclusive, 7.05c.
(6) Chicago or Birm. base.
(7) Chicago base 2 cols. lower.
(8) 16 Ga. and heavier.
(9) Merchant quality; add 0.35c for special quality.
(10) Pittsburgh base.
(11) Cleveland & Pitts. base.
(12) Worcester, Mass. base.
(13) Add 0.25c for 17 Ga. & heavier.
(14) Gage 0.143 to 0.249 in.; for gage 0.142 and lighter, 5.80c.
(15) ⅜" and thinner.
(16) 40 lb and under.
(17) Flats only; 0.25 in. & heavier.
(18) To dealers.
(19) Chicago & Pitts. base.
(21) New Haven, Conn. base.
(22) Deld. San Francisco Bay area.
(23) Special quality.
(24) Deduct 0.15c, finer than 15 Ga.
(25) Bar mill bands.
(27) Bar mill sizes.
(28) Bonderized.
(29) Youngstown base.
(30) Sheared; for universal mill add 0.45c.
(31) Widths over ⅝ in.; 7.60c, for widths ⅝ in. and under by 0.125 in. and thinner.
(32) Buffalo base.
(33) To jobbers, deduct 20c.
(34) 9.60c for cut lengths.
(35) 72" and narrower.
(36) 54" and narrower.
(37) Chicago base, 10 points lower.
(38) 14 Ga. & lighter; 48" & narrower.
(39) 48" and narrower.
(40) Lighter than 0.035"; 0.035" and heavier, 0.25c higher.
(41) 9.10c for cut lengths.
(42) Mill lengths, f.o.b. mill; deld. in mill zone or within switching limits, 5.685c.
(43) 9-14½ Ga.
(44) To fabricators.
(48) 6-7 Ga.
(49) 3½ in. and smaller rounds; 9.30c, over 3½ in. and other shapes.

SEAMLESS STANDARD PIPE, Threaded and Coupled

Carload discounts from list, %

Size—Inches	2		2½		3		3½		4		5		6	
List Per Ft	37c		58.5c		76.5c		92c		$1.09		$1.48		$1.92	
Pounds Per Ft	3.68		5.82		7.62		9.20		10.89		14.81		19.18	
	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*
Aliquippa, Pa. J5	+9.25	+24.25	+2.75	+19.5	+0.25	+17	1.25	+15.5	1.25	+15.5	1	+15.75	3.5	+13.25
Ambridge, Pa. N2	+9.25	....	+2.75	....	+0.25	....	1.25	....	1.25	....	1	....	3.5	....
Lorain, O. N3	+9.25	+24.25	+2.75	+19.5	+0.25	+17	1.25	+15.5	1.25	+15.5	1	+15.75	3.5	+13.25
Youngstown Y1	+9.25	+24.25	+2.75	+19.5	+0.25	+17	1.25	+15.5	1.25	+15.5	1	+15.75	3.5	+13.25

ELECTRIC STANDARD PIPE, Threaded and Coupled

Carload discounts from list, %

Youngstown R2	+9.25	+24.25	+2.75	+19.5	+0.25	+17	1.25	+15.5	1.25	+15.5	1	+15.75	3.5	+13.25

BUTTWELD STANDARD PIPE, Threaded and Coupled

Carload discounts from list, %

Size—Inches	⅛		¼		⅜		½		¾		1		1¼	
List Per Ft	5.5c		6c		6c		8.5c		11.5c		17c		23c	
Pounds Per Ft	0.24		0.42		0.57		0.85		1.13		1.68		2.28	
	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*
Aliquippa, Pa. J5	....	....	....	....	....	....	5.25	+10	8.25	+6	11.75	+1.5	14.25	+0.75
Alton, Ill. L1	....	....	....	....	....	....	3.25	+12	6.25	+8	9.75	+3.5	12.25	+2.75
Benwood, W. Va. W10	4.5	+22	+7.5	+31	+18	+39.5	5.25	+10	8.25	+6	11.75	+1.5	14.25	+0.75
Butler, Pa. F6	5.5	+21	+6.5	+30	+17	+38.5	....	....	....	....	....	....	....	....
Etna, Pa. N2	....	....	....	....	....	....	5.25	+10	8.25	+6	11.75	+1.5	14.25	+0.75
Fairless, Pa. N3	....	....	....	....	....	....	3.25	+12	6.25	+8	9.75	+3.5	12.25	+2.75
Fontana, Calif. K1	....	....	....	....	....	....	+8.25	+23.5	+5.25	+19.5	+1.75	+15	0.75	+14.25
Indiana Harbor, Ind. Y1	....	....	....	....	....	....	4.25	+11	7.25	+7	10.75	+2.5	13.25	+3.25
Lorain, O. N3	....	....	....	....	....	....	5.25	+10	8.25	+6	11.75	+1.5	14.25	+0.75
Sharon, Pa. S4	5.5	+21	+6.5	+30	+17	+38.5	....	....	....	....	....	....	....	....
Sharon, Pa. M6	....	....	....	....	....	....	5.25	+10	8.25	+6	11.75	+1.5	14.25	+0.75
Sparrows Pt., Md. B2	3.5	+23	+8.5	+32	+19	+40.5	3.25	+12	6.25	+8	9.75	+3.5	12.25	+2.75
Wheatland, Pa. W9	5.5	+21	+6	+30	+17	+38.5	5.25	+10	8.25	+6	11.75	+1.5	14.25	+0.75
Youngstown R2, Y1	....	....	....	....	....	....	5.25	+10	8.25	+6	11.75	+1.5	14.25	+0.75

Size—Inches	1½		2		2½		3		3½		4	
List Per Ft	27.5c		37c		58.5c		76.5c		92c		$1.09	
Pounds Per Ft	2.73		3.68		5.82		7.62		9.20		10.89	
	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*
Aliquippa, Pa. J5	14.75	0.25	15.25	0.75	16.75	0.5	16.75	0.5	....	....	....	....
Alton, Ill. L1	12.75	+1.75	13.25	+1.25	14.75	+1.5	14.75	+1.5	....	....	....	....
Benwood, W. Va. W10	14.75	0.25	15.25	0.75	16.75	0.5	16.75	0.5	6.25	+10.5	6.25	+10.5
Etna, Pa. N2	14.75	0.25	15.25	0.75	16.75	0.5	16.75	0.5	6.25	+10.5	6.25	+10.5
Fairless, Pa. N3	12.75	+1.75	13.25	+1.25	14.75	+1.5	14.75	+1.5	4.25	+12.5	4.25	+12.5
Fontana, Calif. K1	1.25	+13.25	1.75	+12.75	3.25	+13	3.25	+13	+7.25	+24	+7.25	+24
Indiana Harbor, Ind. Y1	13.75	+0.75	14.25	+0.25	15.75	+0.5	15.25	+0.5	5.25	+11.5	5.25	+11.5
Lorain, O. N3	14.75	0.25	15.25	0.75	16.75	0.5	16.75	0.5	....	....	....	....
Sharon, Pa. M6	14.75	0.25	15.25	0.75	16.75	0.5	16.75	0.5	....	....	....	....
Sparrows Pt., Md. B2	12.75	+1.75	13.25	+1.25	14.75	+1.5	14.75	+1.5	4.25	+12.5	4.25	+12.5
Wheatland, Pa. W9	14.75	0.25	15.25	0.75	16.75	0.5	16.75	0.5	6.25	+10.5	6.25	+10.5
Youngstown R2, Y1	14.75	0.25	15.25	0.75	16.75	0.5	16.75	0.5	6.25	+10.5	6.25	+10.5

*Galvanized pipe discounts based on current price of zinc (10.00c, East St. Louis).

Stainless Steel

Representative prices, cents per pound; subject to current lists of extras

AISI Type	—Rerolling— Ingot	Slabs	Forging Billets	H.R. Strip	H.R. Rods; C.F. Wire	Bars; Structural Shapes	Plates	Sheets	C.R. Strip; Flat Wire
201	22.00	27.00	....	36.00	40.00	42.00	44.25	48.50	45.00
202	23.75	30.25	36.50	39.00	40.75	43.00	45.00	49.25	49.25
301	23.25	28.00	37.25	37.25	42.00	44.25	46.25	51.25	47.50
302	25.25	31.50	38.00	40.50	42.75	45.00	47.25	52.00	52.00
302B	25.50	32.75	40.75	45.75	45.00	47.25	49.50	57.00	57.00
303	....	32.00	41.00	46.00	45.50	48.00	50.00	56.75	56.75
304	27.00	33.25	40.50	44.25	45.25	47.75	50.75	55.00	55.00
304L	....	....	48.25	51.50	53.00	55.50	58.50	63.25	62.75
305	28.50	36.75	42.50	47.50	45.25	47.75	51.25	58.75	58.75
308	30.75	38.25	47.25	50.25	52.75	55.75	60.25	63.00	63.00
309	39.75	49.50	57.75	64.50	63.75	67.00	71.00	80.50	80.50
310	49.75	61.50	78.00	84.25	86.50	91.00	92.75	96.75	96.75
314	....	....	77.50	....	86.50	91.00	92.75	99.00	104.25
316	39.75	49.50	62.25	69.25	69.25	73.00	76.75	80.75	80.75
316L	....	55.50	70.00	76.50	77.00	80.75	84.50	89.25	88.50
317	48.00	60.00	76.75	88.25	86.25	90.75	93.50	101.00	101.00
321	32.25	40.00	47.00	53.50	52.50	55.50	59.75	65.50	65.50
330	....	....	106.75	....	95.25	106.75	105.50	108.00	149.25
18-8 CbTa	37.00	46.50	55.75	63.50	61.50	64.75	69.75	79.25	79.25
403	....	....	32.00	....	35.75	37.75	40.25	48.25	48.25
405	19.50	25.50	29.75	36.00	33.50	35.25	37.50	46.75	46.75
410	16.75	21.50	28.25	31.00	32.00	33.75	35.00	40.25	40.25
416	....	....	28.75	....	32.50	34.25	36.00	48.25	48.25
420	26.00	33.50	34.25	41.75	39.25	41.25	45.25	52.00	62.00
430	17.00	21.75	28.75	32.00	32.50	34.25	36.00	40.75	40.75
430F	....	....	29.50	....	33.00	34.75	36.75	51.75	42.00
431	....	28.75	37.75	....	42.00	44.25	46.00	56.00	56.00
446	....	....	39.25	59.00	44.25	46.50	47.75	70.00	70.00

Stainless Steel Producers Are: Allegheny Ludlum Steel Corp.; American Steel & Wire Div., U. S. Steel Corp.; Anchor Drawn Steel Co., division of Vanadium-Alloys Steel Co.; Armco Steel Corp.; Babcock & Wilcox Co.; Bethlehem Steel Co.; J. Bishop & Co.; A. M. Byers Co.; G. O. Carlson Inc.; Carpenter Steel Co.; Carpenter Steel Co. of New England; Charter Wire Products; Crucible Steel Co. of America; Damascus Tube Co.; Dearborn Div., Sharon Steel Corp.; Wilbur B. Driver Co.; Driver-Harris Co.; Eastern Stainless Steel Corp.; Firth Sterling Inc.; Fort Wayne Metals Inc.; Green River Steel Corp., subsidiary of Jessop Steel Co.; Indiana Steel & Wire Co.; Ingersoll Steel Div., Borg-Warner Corp.; Ellwood Ivins Steel Tube Works Inc.; Jessop Steel Co.; Johnson Steel & Wire Co. Inc.; Stainless Steel Div., Jones & Laughlin Steel Corp.; Joslyn Stainless Steels, division of Joslyn Mfg. & Supply Co.; Latrobe Steel Co.; Lukens Steel Co.; Maryland Fine & Specialty Wire Co. Inc.; McLouth Steel Corp.; Metal Forming Corp.; Midvale-Heppenstall Co.; National Standard Co.; National Tube Div., U. S. Steel Corp.; Pacific Tube Co.; Page Steel & Wire Div., American Chain & Cable Co. Inc.; Pittsburgh Rolling Mills Inc.; Republic Steel Corp.; Riverside-Alloy Metal Div., H. K. Porter Company Inc.; Rodney Metals Inc.; Sawhill Tubular Products Inc.; Sharon Steel Corp.; Simonds Saw & Steel Co.; Specialty Wire Co. Inc.; Standard Tube Co.; Superior Steel Div., Copperweld Steel Co.; Superior Tube Co.; Swepco Tube Corp.; Techalloy Co. Inc.; Timken Roller Bearing Co.; Trent Tube Co., subsidiary of Crucible Steel Co. of America; Tube Methods Inc.; Ulbrich Stainless Steels Inc.; U. S. Steel Corp.; Universal-Cyclops Steel Corp.; Vanadium-Alloys Steel Co.; Wall Tube & Metal Products Co.; Wallingford Steel Co., subsidiary of Allegheny Ludlum Steel Corp.; Washington Steel Corp.

Clad Steel

	Plates 5%	Plates Carbon Base 10%	Plates Carbon Base 15%	Plates Carbon Base 20%	Sheets Carbon Base 20%
Stainless					
302	....	....	....	....	37.50
304	34.70	37.95	42.25	46.70	39.75
304L	36.90	40.55	45.10	49.85	....
316	40.35	44.50	49.50	54.50	58.25
316L	45.05	49.35	54.70	60.10	....
316 Cb	47.30	53.80	61.45	69.10	....
321	36.60	40.05	44.60	49.30	47.25
347	38.25	42.40	47.55	52.80	57.00
405	28.60	29.85	33.35	36.85	....
410	28.15	29.55	33.10	36.70	....
430	28.30	29.80	33.55	37.25	....
Inconel	48.00	59.55	70.15	80.85	....
Nickel	41.65	51.95	62.30	72.70	....
Nickel, Low Carbon	41.95	52.60	63.30	74.15	....
Monel	43.35	53.55	63.80	74.05	....
Copper*	....	....	....	....	46.00

	Strip, Carbon Base —Cold Rolled— 10%	Both Sides
Copper*	33.10	38.75

*Deoxidized. Production points: Stainless-clad sheets, New Castle, Ind. I-4; stainless-clad plates, Claymont, Del. C22, Coatesville, Pa. L7, New Castle, Ind. I-4, and Washington, Pa. J3; nickel, inconel, monel-clad plates, Coatesville L7; copper-clad strip, Carnegie, Pa. S18.

Tool Steel

Grade	$ per lb	Grade	$ per lb
Regular Carbon	0.305	Cr-Hot Work	0.475
Extra Carbon	0.360	W-Cr Hot Work	0.500
Special Carbon	0.475	V-Cr Hot Work	0.520
Oil Hardening	0.475	Hi-Carbon-Cr	0.925

Grade by Analysis (%) W	Cr	V	Co	Mo		$ per lb
20.25	4.25	1.6	12.25	....	....	4.285
18.25	4.25	1	4.75	....	....	2.500
18	4	2	9	....	....	2.870
18	4	2	....	....	....	1.960
18	4	1	....	....	....	1.795
9	3.5	....	....	....	....	1.395
13.5	4	3	....	....	....	2.060
13.75	3.75	2	5	....	....	2.440
6.4	4.5	1.9	....	5	....	1.300
6	4	3	....	6	....	1.545
1.5	4	1	....	8.5	....	1.155

Tool steel producers include: A4, A8, B2, B8, C4, C9, C13, C18, F2, J3, L3, M14, S8, U4, V2, and V3.

Pig Iron

F.o.b. furnace prices in dollars per gross ton, as reported to STEEL. Minimum delivered prices are approximate and do not include 3% federal transportation tax.

	Basic	No. 2 Foundry	Malle-able	Besse-mer
Birmingham District				
Birmingham R2	62.00	62.50‡	....	....
Birmingham U6	....	62.50‡	66.50	....
Woodward,Ala. W15	62.00**	62.50‡	66.50	....
Cincinnati, deld.	....	70.20	....	....
Buffalo District				
Buffalo H1, R2	66.00	66.50	67.00	67.50
N.Tonawanda,N.Y. T9	....	66.50	67.00	67.50
Tonawanda,N.Y. W12	66.00	66.50	67.00	67.50
Boston, deld.	77.29	77.79	78.29	....
Rochester,N.Y., deld.	69.02	69.52	70.02	....
Syracuse,N.Y., deld.	70.12	70.62	71.12	....
Chicago District				
Chicago I-3	66.00	66.50	66.50	67.00
S.Chicago,Ill. R2	66.00	66.50	66.50	67.00
S.Chicago,Ill. W14	66.00	....	66.50	67.00
Milwaukee, deld.	69.02	69.52	69.52	70.02
Muskegon,Mich., deld.	....	74.52	74.52	....
Cleveland District				
Cleveland R2, A7	66.00	66.50	66.50	67.00
Akron,Ohio, deld.	69.12	69.62	69.62	70.12
Mid-Atlantic District				
Birdsboro,Pa. B10	68.00	68.50	69.00	69.50
Chester,Pa. P4	68.00	68.50	69.00	....
Swedeland,Pa. A3	68.00	68.50	69.00	69.50
NewYork, deld.	....	75.50	76.00	....
Newark,N.J., deld.	72.69	73.19	73.69	74.19
Philadelphia, deld.	70.41	70.91	71.41	71.99
Troy,N.Y. R2	68.00	68.50	69.00	69.50
Pittsburgh District				
NevilleIsland,Pa. P6	66.00	66.50	66.50	67.00
Pittsburgh (N&S sides), Aliquippa, deld.	....	67.95	67.95	68.48
McKeesRocks,Pa., deld.	....	67.60	67.60	68.13
Lawrenceville,Homestead, Wilmerding,Monaca,Pa., deld.	....	68.26	68.26	68.79
Verona,Trafford,Pa., deld.	68.29	68.82	68.82	69.35
Brackenridge,Pa., deld.	68.60	69.10	69.10	69.63
Midland,Pa. C18	66.00	....	....	....
Youngstown District				
Hubbard,Ohio Y1	....	....	66.50	....
Sharpsville,Pa. S6	66.00	....	66.50	67.00
Youngstown Y1	....	....	66.50	67.00
Mansfield,Ohio, deld.	70.90	....	71.40	71.90
Duluth I-3	66.00	66.50	66.50	67.00
Erie,Pa. I-3	66.00	66.50	66.50	67.00
Everett,Mass. E1	67.50	68.00	68.50	....
Fontana,Calif. K1	75.00	75.50	....	....
Geneva,Utah C11	66.00	66.50	....	....
GraniteCity,Ill. G4	67.90	68.40	68.90	....
Ironton,Utah C11	66.00	66.50	....	....
Minnequa,Colo. C10	68.00	68.50	69.00	....
Rockwood, Tenn. T3	....	62.50‡	66.50	....
Toledo,Ohio I-3	66.00	66.50	66.50	67.00
Cincinnati, deld.	72.54	73.04	....	....

**Phos. 0.70-0.90%; Phos. 0.30-0.69%, $63.
‡Phos. 0.70-0.90%; Phos. 0.30-0.69%, $63.50.

PIG IRON DIFFERENTIALS

Silicon: Add 75 cents per ton for each 0.25% Si or percentage thereof over base grade, 1.75-2.25%, except on low phos. iron on which base is 1.75-2.00%.

Manganese: Add 50 cents per ton for each 0.25% manganese over 1% or portion thereof.

Nickel: Under 0.50% no extra; 0.50-0.74%, inclusive, add $2 per ton and each additional 0.25%, add $1 per ton.

BLAST FURNACE SILVERY PIG IRON, Gross Ton

(Base 6.00-6.50% silicon; add $1 for each 0.50% silicon or portion thereof over the base grade within a range of 6.50 to 11.50%; starting with silicon over 11.50% add $1.50 per ton for each 0.50% silicon or portion thereof up to 14%; add $1 for each 0.50% Mn over 1%)

Jackson,Ohio I-3, J1	$78.00
Buffalo H1	79.25

ELECTRIC FURNACE SILVERY IRON, Gross Ton

(Base 14.01-14.50% silicon; add $1 for each 0.5% Si to 18%; $1.25 for each 0.50% Mn over 1%; $2 per gross ton premium for 0.045% max P)

CalvertCity,Ky. P15	$99.00
NiagaraFalls,N.Y. P15	99.00
Keokuk,Iowa Open-hearth & Fdry, $9 freight allowed K2	103.50
Keokuk,Iowa O.H. & Fdry, 12½ lb piglets, 16% Si, max fr'gt allowed up to $9, K2	106.50

LOW PHOSPHORUS PIG IRON, Gross Ton

Lyles,Tenn. T3 (Phos. 0.035% max)	$78.50
Rockwood,Tenn. T3 (Phos. 0.035% max)	78.50
Troy,N.Y. R2 (Phos. 0.035% max)	74.00
Philadelphia, deld.	82.67
Cleveland A7 (Intermediate) (Phos. 0.036-0.075% max)	71.00
Duluth I-3 (Intermediate) (Phos. 0.036-0.075% max)	71.00
Erie,Pa. I-3 (Intermediate) (Phos. 0.036-0.075% max)	71.00
NevilleIsland,Pa. P6 (Intermediate) (Phos. 0.036-0.075% max)	71.00

Warehouse Steel Products

Representative prices, per pound, subject to extras, f.o.b. warehouse. City delivery charges are 15 cents per 100 lb except: Moline, Norfolk, Richmond, Washington, 20 cents; Baltimore, Boston, Los Angeles, New York, Philadelphia, Portland, Spokane, San Francisco, 10 cents; Atlanta, Chattanooga, Houston, Seattle, no charge.

	SHEETS				STRIP	BARS			Standard Structural Shapes	PLATES	
	Hot-Rolled	Cold-Rolled	Gal. 10 Ga.†	Stainless Type 302	Hot-Rolled*	H.R. Rounds	C.F. Rds.‡	H.R. Alloy 4140††[5]		Carbon	Floor
Atlanta	8.59§	9.86§	....	....	8.64	9.01	10.68	....	9.05	8.97	10.90
Baltimore	8.28	8.88	9.68	....	8.76	9.06	11.34 #	15.18	9.19	8.66	10.14
Birmingham	8.18	9.45	11.07	....	8.23	8.60	10.57	....	8.64	8.56	10.70
Boston	9.38	10.44	11.45	53.50	9.42	9.73	12.90 #	15.28	9.63	9.72	11.20
Buffalo	8.25	9.00	11.07	55.98	8.50	8.80	11.00 #	15.00	8.90	8.90	10.45
Chattanooga	8.35	9.69	9.65	....	8.40	8.77	10.46	....	8.88	8.80	10.66
Chicago	8.20	9.45	10.10	53.00	8.23	8.60	8.80	14.65	8.64	8.56	9.88
Cincinnati	8.34	9.48	10.10	52.43	8.54	8.92	11.06	14.86	9.18	8.93	10.21
Cleveland	8.18	9.45	10.20	52.33	8.33	8.69	10.80 #	14.74	9.01	8.79	10.11
Dallas	7.50	8.80	....	....	7.65	7.60	11.01	....	9.00	9.45	10.70
Denver	9.38	11.75	....	....	9.41	9.78	11.10	....	7.65	8.45	9.70
Detroit	8.43	9.70	10.45	56.50	8.58	8.90	9.15	14.91	9.18	8.91	10.13
Erie, Pa.	8.20	9.45	9.95[10]	....	8.50	8.75	9.05[10]	....	9.00	8.85	10.10
Houston	7.10	8.40	8.45	54.32	7.25	7.20	11.10	13.50	7.25	8.05	9.30
Jackson, Miss.	8.52	9.79	....	....	8.57	8.94	10.68	....	8.97	8.90	10.74
Los Angeles	8.45	9.40	11.80	57.60	8.90	8.75	12.10	16.10	8.70	8.85	11.00
Memphis, Tenn.	8.55	9.80	....	....	8.60	8.97	11.96 #	....	9.01	8.93	10.56
Milwaukee	8.33	9.58	10.23	....	8.36	8.73	9.03	14.78	8.85	8.69	10.01
Moline, Ill.	8.55	9.80	10.45	....	8.58	8.95	9.15	....	8.99	8.91	....
New York	8.87	10.13	10.56	53.08	9.31	9.57	12.76 #	15.09	9.35	9.43	10.66
Norfolk, Va.	8.40	....	....	....	9.10	9.10	12.00	....	9.40	8.85	10.35
Philadelphia	8.00	8.90	9.92	52.69	8.70	8.65	11.51 #	15.01	8.50	8.75	9.75**
Pittsburgh	8.18	9.45	10.45	52.00	8.33	8.60	10.80 #	14.65	8.64	8.56	9.88
Portland, Oreg.	8.50	11.20	11.55	57.38	9.55	8.65	14.50	15.95	8.65	8.30	11.50
Richmond, Va.	8.40	....	10.40	....	9.10	9.00	....	....	9.40	8.85	10.35
St. Louis	8.54	9.79	10.36	....	8.59	8.97	9.41	15.01	9.10	8.93	10.25
St. Paul	8.79	10.04	10.71	....	8.84	9.21	9.66	....	9.38	9.30	10.49
San Francisco	9.35	10.75	11.00	55.10	9.45	9.70	13.00 #	16.00	9.50	9.60	12.00
Seattle	9.95	11.15	12.20	57.38	10.00	10.10	14.05	16.35	9.80	9.70	12.10
South'ton, Conn.	9.07	10.33	10.71	....	9.48	9.74	....	....	9.57	9.57	10.91
Spokane	9.95	11.15	12.20	57.38	10.00	10.10	14.05	16.35	9.80	9.70	12.10
Washington	8.88	....	....	....	9.36	9.56	10.94	....	9.79	9.26	10.74

*Prices do not include gage extras; †prices include gage and coating extras; ‡includes 35-cent bar quality extras; §42 in. and under; **⅛ in. and heavier; ††as annealed; ‡‡over 4 in.; §§over 3 in.; # 1 in. round C-1018.

Base quantities, 2000 to 4999 lb except as noted; cold-rolled strip and cold-finished bars, 2000 lb and over except in Seattle, 2000 to 9999 lb, and in Los Angeles, 6000 lb and over; stainless sheets, 8000 lb except in Chicago, New York, Boston, Seattle, Portland, Oreg. 10,000 lb and in San Francisco, 2000 to 4999 lb; hot-rolled products on West Coast, 2000 to 9999 lb, except in Portland, Oreg., 1000 to 9999 lb; [3]—400 to 9999 lb; [8]—1000 to 1999 lb; [8]—2000 to 3999 lb; [10]—2000 lb and over.

Refractories

Fire Clay Brick (per 1000)

High-Heat Duty: Ashland, Grahn, Hayward, Hitchins, Haldeman, Olive Hill, Ky., Athens, Troup, Tex., Beech Creek, Clearfield, Curwensville, Lock Haven, Lumber, Orviston, West Decatur, Winburne, Snow Shoe, Pa., Bessemer, Ala., Farber, Mexico, St. Louis, Vandalia, Mo., Ironton, Oak Hill, Parrail, Portsmouth, Ohio, Ottawa, Ill., Stevens Pottery, Ga., $135; Salina, Pa., $140; Niles, Ohio, $138; Cutler, Utah, $165.

Super-Duty: Ironton, Ohio, Vandalia, Mo., Olive Hill, Ky., Clearfield, Salina, Winburne, Snow Shoe, Pa., New Savage, Md., St. Louis, $175; Stevens Pottery, Ga., $185; Cutler, Utah, $233.

Silica Brick (per 1000)

Standard: Alexandria, Claysburg, Mt. Union, Sproul, Pa., Ensley, Ala., Pt. Matilda, Pa., Portsmouth, Ohio, Hawstone, Pa., $150; Warren, Niles, Windham, Ohio, Hays, Latrobe, Morrisville, Pa., $155; E. Chicago, Ind., Joliet, Rockdale, Ill., $160; Lehigh, Utah, $175; Los Angeles, $180.

Super-Duty: Sproul, Hawstone, Pa., Niles, Warren, Windham, Ohio, Leslie, Md., Athens, Tex., $157; Morrisville, Hays, Latrobe, Pa., $160; E. Chicago, Ind., $167; Curtner, Calif., $182.

Semisilica Brick (per 1000)

Clearfield, Pa., $140; Philadelphia, $137; Woodbridge, N. J., $135.

Ladle Brick (per 1000)

Dry Pressed: Alsey, Ill., Chester, New Cumberland, W. Va., Freeport, Johnstown, Merrill Station, Vanport, Pa., Mexico, Vandalia, Mo., Wellsville, Irondale, New Salisbury, Ohio, $96.75; Clearfield, Pa., Portsmouth, Ohio, $102.

High-Alumina Brick (per 1000)

50 Per Cent: St. Louis, Mexico, Vandalia, Mo., $235; Danville, Ill., $238; Philadelphia, Clearfield, Pa., $230; Orviston, Snow Shoe, Pa., $245.

60 Per Cent: St. Louis, Mexico, Vandalia, Mo., $295; Danville, Ill., $298; Clearfield, Orviston, Snow Shoe, Pa., $305; Philadelphia, $310.

70 Per Cent: St. Louis, Mexico, Vandalia, Mo., $335; Danville, Ill., $338; Clearfield, Orviston, Snow Shoe, Pa., $345; Philadelphia, $350.

Sleeves (per 1000)

Reesdale, Johnstown, Bridgeburg, Pa., St. Louis, $188.

Nozzles (per 1000)

Reesdale, Johnstown, Bridgeburg, Pa., St. Louis, $310.

Runners (per 1000)

Reesdale, Johnstown, Bridgeburg, Pa., $234.

Dolomite (per net ton)

Domestic, dead-burned, bulk, Billmeyer, Blue Bell, Williams, Plymouth Meeting, York, Pa., Millville, W. Va., Bettsville, Millersville, Martin, Woodville, Gibsonburg, Narlo, Ohio, $16.75; Thornton, McCook, Ill., $17; Dolly Siding, Bonne Terre, Mo., $15.

Magnesite (per net ton)

Domestic, dead-burned, ½ in. grains with fines: Chewelah, Wash., Luning, Nev., $46; ⅜ in. grains with fines: Baltimore, $73.

Fluorspar

Metallurgical grades, f.o.b. shipping point in Ill., Ky., net tons, carloads, effective CaF_2 content 72.5%, $37-41; 70%, $36.40; 60%, $33-36.50. Imported, net tons, f.o.b. cars point of entry, duty paid, metallurgical grade: European, $33-34; Mexican, all rail, duty paid, $25.25-25.75; barge, Brownsville, Tex., $27.25-27.75.

Metal Powder

(Per pound f.o.b. shipping point in ton lots for minus 100 mesh, except as noted)

	Cents
Sponge Iron, Swedish: deld. east of Mississippi River, ocean bags 23,000 lb and over..	10.50
F.o.b. Riverton or Camden, N. J., west of Mississippi River.	9.50
Sponge Iron, Domestic, 98 + % Fe: Deld. east of Mississippi River, 23,000 lb and over	10.50
Electrolytic Iron: Melting stock, 99.9% Fe, irregular fragments of ⅜ in. x 1.3 in.	28.00
Annealed, 99.5% Fe..	36.50
Unannealed (99 + % Fe)	36.00
Unannealed (99 + % Fe) (minus 325 mesh)	59.00
Powder Flakes (minus 16, plus 100 mesh).	29.00
Carbonyl Iron: 98.1-99.9%, 3 to 20 microns, depending on grade, 93.00-290.00 in standard 200-lb containers; all minus 200 mesh.	

	Cents
Aluminum: Atomized, 500-lb drum, freight allowed Carlots	39.50
Ton lots	41.50
Antimony, 500-lb lots	42.00*
Brass, 5000-lb lots	30.30-45.70†
Bronze, 5000-lb lots	45.70-49.80†
Copper: Electrolytic	14.75*
Reduced	14.75*
Lead	7.50*
Manganese: Minus 35 mesh	64.00
Minus 100 mesh	70.00
Minus 200 mesh	75.00
Nickel, unannealed	74.00
Nickel-Silver, 5000-lb lots	47.80-52.60†
Phosphor-Copper, 5000-lb lots	57.80
Copper (atomized) 5000-lb lots	38.30-46.80†
Silicon	47.50
Solder	7.00*
Stainless Steel, 304	$1.07
Stainless Steel, 316	$1.26
Tin	14.50*
Zinc, 5000-lb lots	17.50-30.70†
Tungsten:	Dollars
Melting grade, 99% 60 to 200 mesh, nominal; 1000 lb and over...	3.15
Less than 1000 lb	3.30
Chromium, electrolytic 99.8% Cr min metallic basis	5.00

*Plus cost of metal, depending on composition. †Depending on mesh.

Electrodes

Threaded with nipple; unboxed, f.o.b. plant

GRAPHITE

Inches Diam	Inches Length	Per 100 lb
2	24	$60.75
2½	30	39.25
3	40	37.00
4	40	35.00
5⅛	40	34.75
6	60	31.50
7	60	28.25
8, 9, 10	60	28.00
12	72	26.75
14	60	26.75
16	72	25.75
17	60	26.25
18	72	26.25
20	72	25.25
24	84	26.00

CARBON

8	60	13.30
10	60	13.00
12	60	12.95
14	60	12.85
14	72	11.95
17	60	11.85
17	72	11.40
20	84	11.40
20	90	11.00
24	72, 84	11.25
24	96	10.95
30	84	11.05
40, 35	110	10.70
40	100	10.70

Imported Steel

(Base per 100 lb, landed, duty paid, based on current ocean rates. Any increase in these rates is for buyer's account. Source of shipment: Western continental European countries.)

	North Atlantic	South Atlantic	Gulf Coast	West Coast
Deformed Bars, Intermediate, ASTM-A 305	$5.53	$5.33	$5.33	$5.73
Bar Size Angles	5.73	5.58	5.58	5.99
Structural Angles	5.73	5.58	5.58	5.99
I-Beams	5.88	5.72	5.72	6.02
Channels	5.88	5.72	5.72	6.02
Plates (basic bessemer)	6.79	6.62	6.62	6.94
Sheets, H.R.	8.25	8.20	8.20	8.50
Sheets, C.R. (drawing quality)	9.00	8.95	8.95	9.25
Furring Channels, C.R., 1000 ft, ¾ x 0.30 lb per ft	25.71	25.59	25.59	26.46
Barbed Wire (†)	6.65	6.65	6.65	7.00
Merchant Bars	6.23	6.07	6.07	6.43
Hot-Rolled Bands	7.20	7.15	7.15	7.55
Wire Rods, Thomas Commercial No. 5	6.73	6.73	6.73	7.13
Wire Rods, O.H. Cold Heading Quality No. 5	7.07	7.07	7.07	7.47
Bright Common Wire Nails (‡)	8.02	8.02	7.92	8.20

†Per 82 lb, net, reel. ‡Per 100-lb kegs, 20d nails and heavier.

Ores

Lake Superior Iron Ore

(Prices effective for the 1958 shipping season, gross ton, 51.50% iron natural, rail of vessel, lower lake ports.)

Mesabi bessemer	$11.60
Mesabi nonbessemer	11.45
Old Range bessemer	11.85
Old Range nonbessemer	11.70
Open-hearth lump	12.70
High phos.	11.45

The foregoing prices are based on upper lake rail freight rates, lake vessel freight rates, handling and unloading charges, and taxes thereon, which were in effect Jan. 30, 1957, and increases or decreases after that date are absorbed by the seller.

Eastern Local Iron Ore

Cents per unit, deld. E. Pa.

New Jersey, foundry and basic 62-64% concentrates	25.00-27.00

Foreign Iron Ore

Cents per unit, c.i.f. Atlantic ports

Swedish basic, 65%	25.00
N. African hematite (spot)	nom.
Brazilian iron ore, 68-69%	27.00

Tungsten Ore

Net ton, unit

Foreign wolframite, good commercial quality	$11.80-12.00*
Domestic, concentrates f.o.b. milling points	20.00

*Before duty.

Manganese Ore

Mn 46-48%, Indian (export tax included), $135 per long ton unit, c.i.f. U. S. ports, duty for buyer's account; other than Indian, nominal; contracts by negotiation.

Chrome Ore

Gross ton, f.o.b. cars New York, Philadelphia, Baltimore, Charleston, S. C., plus ocean freight differential for delivery to Portland, Oreg., Tacoma, Wash.

Indian and Rhodesian	
48% 3:1	$50.00
48% 2.8:1	48.00
48% no ratio	39.00
South African Transvaal	
48% no ratio	$37.00
44% no ratio	27.00
Turkish	
48% 3:1	$55.00
Domestic Rail nearest seller	
18% 3:1	39.00

Molybdenum

Sulfide concentrate, per lb of Mo content, mines, unpacked	$1.18

Antimony Ore

Per short ton unit of Sb content, c.i.f. seaboard	
55-60%	$2.50-2.60
60-65%	2.60-2.90

Vanadium Ore

Cents per lb V_2O_5

Domestic	31.00

Metallurgical Coke

Price per net ton

Beehive Ovens

Connellsville, Pa., furnace	$14.75-15.75
Connellsville, Pa., foundry	18.00-18.50

Oven Foundry Coke

Birmingham, ovens	$28.85
Cincinnati, deld.	31.84
Buffalo, ovens	30.50
Camden, N. J., ovens	29.50
Detroit, ovens	30.50
Pontiac, Mich., deld.	32.45
Saginaw, Mich., deld.	34.03
Erie, Pa., ovens	30.50
Everett, Mass., ovens: New England, deld.	31.55*
Indianapolis, ovens	29.75
Ironton, Ohio, ovens	29.00
Cincinnati, deld.	31.84
Kearny, N. J., ovens	29.75
Milwaukee, ovens	30.50
Neville Island (Pittsburgh), Pa., ovens	29.25
Painesville, Ohio, ovens	30.50
Cleveland, deld.	32.69
Philadelphia, ovens	29.50
St. Louis, ovens	31.50
St. Paul, ovens	29.75
Chicago, deld.	33.29
Swedeland, Pa., ovens	29.50
Terre Haute, Ind., ovens	29.75

*Or within $4.85 freight zone from works.

Coal Chemicals

Spot, cents per gallon, ovens

Pure benzene	36.00
Toluene, one deg	29.50
Industrial xylene	32.00-34.00
Per ton, bulk, ovens	
Ammonium sulfate	$32.00-34.00

Cents per pound, producing point

Phenol: Grade 1, 17.50; Grade 2-3, 15.50; Grade 4, 17.50; Grade 5, 16.50; Grade 6, 14.50.

Ferroalloys

MANGANESE ALLOYS

Spiegeleisen: Carlot, per gross ton. Palmerton, Neville Island, Pa., 21-23% Mn, $105; 19-21% Mn, 1-3% Si, $102.50; 16-19% Mn, $100.50.

Standard Ferromanganese: (Mn 74-76%, C 7% approx.) Base price per net ton; $245, Johnstown, Duquesne, Sheridan, Neville Island, Pa.; Alloy, W. Va.; Ashtabula, Marietta, O.; Sheffield, Ala.; Portland, Oreg. Add or subtract $2 for each 1% or fraction thereof of contained manganese over 76% or under 74%, respectively. (Mn 79-81%). Lump $253 per net ton, f.o.b. Anaconda or Great Falls, Mont. Add $2.60 for each 1% above 81%; subtract $2.60 for each 1% below 79%, fractions in proportion to nearest 0.1%.

High-Grade Low-Carbon Ferromanganese: (Mn 85-90%). Carload, lump, bulk, max 0.07% C, 35.1c per lb of contained Mn, carload packed 36.4c, ton lots 37.9c, less ton 39.1c. Delivered. Deduct 1.5c for max 0.15% C grade from above prices; 3c for max 0.03% C, 3.5c for max 0.5% C, and 6.5c for max 75% C—max 7% Si. **Special Grade:** (Mn 90% min, C 0.07% max, P 0.06% max). Add 2.05c to the above prices. Spot, add 0.25c.

Medium-Carbon Ferromanganese: (Mn 80-85%, C 1.25-1.5%, Si 1.5% max). Carload, lump, bulk, 25.5c per lb of contained Mn, packed, carload 26.8c, ton lot 28.4c, less ton 29.6c. Delivered. Spot, add 0.25c.

Manganese Metal: 2" x D (Mn 95.5% min, Fe 2% max, Si 1% max, C 0.2%). Carload, lump, bulk, 45c per lb of metal; packed, 45.75c; ton lot 47.25c; less ton lot 49.25c. Delivered. Spot, add 2c.

Electrolytic Manganese Metal: Min carload, 34c; 2000 lb to min carload, 36c; less ton, 38c; 50 lb cans, add 0.5c per lb. Premium for hydrogen-removed metal, 0.75c per lb. Prices are f.o.b. cars, Knoxville, Tenn., freight allowed to St. Louis or any point east of Mississippi; or f.o.b. Marietta, O., freight allowed.

Silicomanganese: (Mn 65-68%). Carload, lump, bulk 1.50% C grade, 18-20% Si, 12.8c per lb of alloy. Packed, c.l. 14c, ton 14.45c, less ton 15.45c, f.o.b. Alloy, W. Va.; Ashtabula, Marietta, O.; Sheffield, Ala.; Portland, Oreg. For 2% C grade, Si 15-17%, deduct 0.2% from above prices. For 3% C grade Si 12-14.5%, deduct 0.4c from above prices. Spot, add 0.25c.

TITANINUM ALLOYS

Ferrotitanium, Low-Carbon: (Ti 20-25%, Al 3.5% max, Si 4% max, C 0.10% max). Contract, ton lot, 2" x D, $1.50 per lb of contained Ti; less ton $1.55. (Ti 38.43%, Al 8% max, Si 4% max, C 0.10% max). Ton lot $1.35, less ton $1.37, f.o.b. Niagara Falls, N. Y., freight allowed to St. Louis. Spot, add 5c.

Ferrotitanium, High-Carbon: (Ti 15-18%, C 6-8%). Contract $200 per ton, f.o.b. Niagara Falls, N. Y., freight allowed to destinations east of Mississippi River and north of Baltimore and St. Louis.

Ferrotitanium, Medium-Carbon: (Ti 17-21%, C 2-4.5%). Contract $225 per ton, f.o.b. Niagara Falls, N. Y., freight not exceeding St. Louis rate allowed.

CHROMIUM ALLOYS

High-Carbon Ferrochrome: Contract, c.l. lump, bulk 28.75c per lb of contained Cr; c.l. packed 30.30c, ton lot 32.05c; less ton 33.45c. Delivered. Spot, add 0.25c.

Low-Carbon Ferrochrome: Cr 63-66% (Simplex), carload, lump, bulk, C 0.025% max, 36.75c per lb contained Cr; 0.010% max, 37.75c. Ton lot, add 3.5c; less ton, add 5.2c. Delivered.

Cr 67-71%, carload, lump, bulk, C 0.02% max, 41.00c per lb contained Cr; 0.025% max, 39.75c; 0.05% max, 39.00c; 0.10% max, 38.50c; 0.20% max, 38.25c; 0.50% max, 38.00c; 1.0% max, 37.75c; 1.5% max, 37.50c; 2.0% max, 37.25c. Ton lot, add 3.4c; less ton lot, add 5.1c. Delivered.

Foundry Ferrochrome, High-Carbon: (Cr 61-66%, C 5-7%, Si 7-10%). Contract, c.l., 2 in. x D, bulk 30.05c per lb of contained Cr. Packed, c.l. 31.65c, ton 33.45c, less ton 34.95c. Delivered. Spot, add 0.25c.

Foundry Ferrosilicon Chrome: (Cr 50-54%, Si 28-32%, C 1.25% max). Contract, carload, packed, SM x D, 21.25c per lb of alloy, ton lot 22.50c; less ton lot 23.70c. Delivered. Spot add 0.25c.

Ferrochrome-Silicon: Cr 39-41%, Si 42-45%, C 0.05% max or Cr 33-36%, Si 45-48%, C 0.05% max. Carload, lump, bulk, 3" x down and 2" x down, 27.50c per lb contained Cr, 14.20c per lb contained Si. 0.75" x down, 28.65c per lb contained Cr, 14.20c per lb contained Si. Delivered.

Chromium Metal Electrolytic: Commercial grade (Cr 99.8% min, metallic basis, Fe 0.2% max). Contract, carlot, packed 2" x D plate (about ⅛" thick) $1.29 per lb, ton lot $1.31, less ton lot $1.33. Delivered. Spot, add 5c.

VANADIUM ALLOYS

Ferrovanadium: Open-hearth grade (V 50-55%, Si 8% max, C 3% max). Contract, any quantity, $3.20 per lb of contained V. Delivered. Spot, add 10c. **Special Grade:** (V 50-55% or 70-75%, Si 2% max, C 0.5% max) $3.30. **High Speed Grade:** (V 50-55%, or 70-75%, Si 1.50% max, C 0.20% max) $3.40.

Grainal: Vanadium Grainal No. 1 $1.05 per lb; No. 79, 50c, freight allowed.

Vanadium Oxide: Contract less carload lot, packed, $1.38 per lb contained V_2O_5, freight allowed. Spot, add 5c.

SILICON ALLOYS

25-30% Ferrosilicon: Contract, carload, lump, bulk, 20.0c per lb of contained Si. Packed 21.40c; ton lot 22.50c, f.o.b. Niagara Falls, N. Y., freight not exceeding St. Louis rate allowed.

50% Ferrosilicon: Contract, carload, lump, bulk, 14.20c per lb of contained Si. Packed c.l. 16.70c, ton lot 18.15c, less ton 19.80c, f.o.b. Alloy, W. Va.; Ashtabula, Marietta, O.; Sheffield, Ala.; Portland, Oreg. Spot, add 0.45c.

Low-Aluminum 50% Ferrosilicon: (Al 0.40% max). Add 1.45c to 50% ferrosilicon prices.

65% Ferrosilicon: Contract, carload, lump, bulk, 15.25c per lb contained silicon. Packed, c.l. 17.25c, ton lot 19.05c; less ton 20.4c. Delivered. Spot, add 0.35c.

75% Ferrosilicon: Contract, carload, lump, bulk, 16.4c per lb of contained Si. Packed, c.l. 18.30c, ton lot 19.95c, less ton 21.2c. Delivered. Spot, add 0.3c.

90% Ferrosilicon: Contract, carload, lump, bulk, 19.5c per lb of contained Si. Packed, c.l. 21.15c, ton lot 22.55c, less ton 23.6c. Delivered. Spot, add 0.25c.

Silicon Metal: (98% min Si, 0.75% max Fe, 0.07% max Ca). C.l. lump, bulk, 22.00c per lb of Si. Packed, c.l. 23.65c, ton lot 24.95c, less ton 25.95c. Add 0.5c for max 0.03% Ca grade. Deduct 0.5c, for max 1% Fe grade analyzing min 99.75% Si; 0.75c for max 1.25% Fe grades analyzing min 96.75% Si. Spot, add 0.25c.

Alsifer: (Approx 20% Al, 40% Si, 40% Fe). Contract, basis f.o.b. Niagara Falls, N. Y.; lump, carload, bulk, 10.65c per lb of alloy; ton lot, packed, 11.8c.

ZIRCONIUM ALLOYS

12-15% Zirconium Alloy: (Zr 12-15%, Si 39-43%, C 0.20% max). Contract, c.l. lump, bulk 9.25c per lb of alloy. Packed, c.l. 10.45c, ton lot 11.6c, less ton 12.45c. Delivered. Spot, add 0.25c.

35-40% Zirconium Alloy: (Zr 35-40%, Si 47-52%, Fe 8-12%, C 0.50% max). Contract, carload, lump, packed 27.25c per lb of alloy, ton lot 28.4c, less ton 29.65c. Freight allowed. Spot, add 0.25c.

BORON ALLOYS

Ferroboron: (B 17.50% min, Si 1.50% max, Al 0.50% max, C 0.50% max). Contract, 100 lb or more 1" x D, $1.20 per lb of alloy; less than 100 lb $1.30. Delivered. Spot, add 5c. F.o.b. Washington, Pa., prices, 100 lb and over are as follows: Grade A (10-14% B) 85c per lb; Grade B (14-18% B) $1.20; Grade C (19% min B) $1.50.

Borosil: (3 to 4% B, 40 to 45% Si). Carload, bulk, lump, or 3" x D, $5.25 per lb of contained B. Packed, carload $5.40, ton to c.l. $5.50, less ton $5.60. Delivered.

Bortam: (B 1.5-1.9%). Ton lot, 45c per lb; less than ton lot, 50c per lb.

Carbortam: (B 1 to 2%). Contract, lump, carload 9.50c per lb f.o.b. Suspension Bridge, N. Y., freight allowed same as high-carbon ferrotitanium.

CALCIUM ALLOYS

Calcium-Manganese-Silicon: (Ca 16-20%, Mn 14-18% and Si 53-59%). Contract, carload, lump, bulk 23c per lb of alloy, carload packed 24.25c, ton lot 26.15c, less ton 27.15c. Delivered. Spot, add 0.25c.

Calcium-Silicon: (Ca 30-33%, Si 60-65%, Fe 1.5-3%). Contract, carload, lump, bulk 24c per lb of alloy, carload packed 25.65c, ton lot 27.95c, less ton 29.45c. Delivered. Spot, add 0.25c.

BRIQUETTED ALLOYS

Chromium Briquets: (Weighing approx 3⅜ lb each and containing 2 lb of Cr). Contract, carload, bulk 19.60c per lb of briquet, carload packed in box pallets 19.80c, in bags 20.70c; 3000 lb to c.l. in box pallets 21.00c; 2000 lb to c.l. in bags 21.90c; less than 2000 lb in bags 22.80c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Ferromanganese Briquets: (Weighing approx 3 lb and containing 2 lb of Mn). Contract, carload, bulk 14.8c per lb of briquet; c.l., packed, pallets 15c, bags 16c; 3000 lb to c.l., pallets 16.2c; 2000 lb to c.l., bags, 17.2c; less ton 18.1c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Silicomanganese Briquets: (Weighing approx 3½ lb and containing 2 lb of Mn and approx ½ lb of Si). Contract, c.l. bulk 15.1c per lb of briquet; c.l. packed, pallets, 15.3c; bags 16.3c; 3000 lb to c.l., pallets, 16.5c; 2000 lb to c.l., bags 17.5c; less ton 18.4c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Silicon Briquets: (Large size—weighing approx 5 lb and containing 2 lb of Si). Contract, carload, bulk 7.7c per lb of briquet; packed, pallets, 7.9c; bags 8.9c; 3000 lb to c.l., pallets 9.5c; 2000 lb to c.l., bags 10.5c; less ton 11.4c. Delivered. Spot, add 0.25c. (Small size—weighing approx 2½ lb and containing 1 lb of Si). Carload, bulk 7.85c. Packed, pallets 8.05c; bags 9.05c; 3000 lb to c.l., pallets 9.65c; 2000 lb to c.l., bags, 10.65c; less ton 11.55c. Delivered. Add 0.25c for notching, small size only. Spot, add 0.25c.

Molybdic-Oxide Briquets: (Containing 2½ lb of Mo each). $1.41 per pound of Mo contained, f.o.b. Langeloth, Pa.

TUNGSTEN ALLOYS

Ferrotungsten: (70-80%), 5000 lb W or more $2.15 per lb (nominal) of contained W. Delivered.

OTHER FERROALLOYS

Ferrocolumbium: (Cb 50-60%, Si 8% max, C 0.4% max). Ton lots 2" x D, $4 per lb of contained Cb; less ton lots, $4.05 (nominal). Delivered.

Ferrotantalum Columbium: (Cb 40% approx Ta 20% approx, and Cb plus Ta 60% min, C 0.30% max). Ton lot 2" x D, $3.80 per lb of contained Cb plus Ta, delivered; less ton lot $3.85 (nominal).

SMZ Alloy: (Si 60-65%, Mn 5-7%, Zr 5-7%, Fe 20% approx). Contract, c.l. packed ½-in. x 12 M 20.00c per lb of alloy, ton lot 21.15c, less ton 22.40c. Delivered. Spot, add 0.25c.

Graphidox No. 5: (Si 48-52%, Ca 5-7%, Ti 9-11%). C.l. packed, 19c per lb of alloy, ton lot 20.15c; less ton lot 21.4c, f.o.b. Niagara Falls, N. Y.; freight allowed to St. Louis.

V-5 Foundry Alloy: (Cr 38-42%, Si 17-19%, Mn 8-11%). C.l. packed 18.1c per lb of alloy; ton lot 19.55c; less ton lot 20.8c, f.o.b. Niagara Falls, N. Y.; freight allowed to St. Louis.

Simanal: (Approx 20% each Si, Mn, Al; bal Fe). Lump, carload, bulk 18.50c. Packed c.l. 19.50c, 2000 lb to c.l. 20.50c, less than 2000 lb 21c per lb of alloy. Delivered.

Ferrophosphorus: (23-25% based on 24% P content with unitage of $4 for each 1% of P above or below the base); carload, f.o.b. sellers' works, Mt. Pleasant, Siglo, Tenn., $110 per gross ton.

Ferromolybdenum: (55-75%). Per lb of contained Mo, in 200-lb container, f.o.b. Langeloth and Washington, Pa. $1.68 in all sizes except powdered which is $1.74.

Technical Molybdic-Oxide: Per lb of contained Mo, in cans, $1.39; in bags, $1.38, f.o.b. Langeloth and Washington, Pa.

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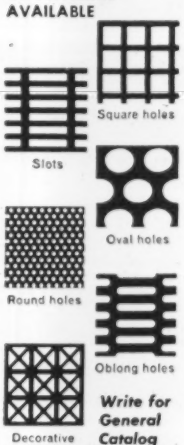

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Perforated metal can be ordered with special finishes: aluminum—color anodized or brushed and lacquer finish; steel—painted, chrome plated, enameled, japanned or other baked-on finish. Decorative patterns can be embossed if requested.

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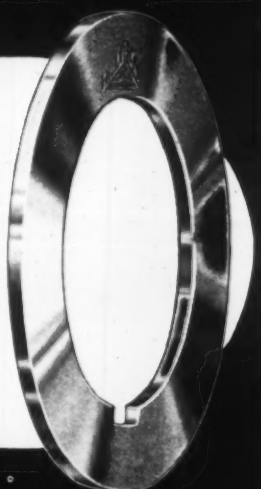

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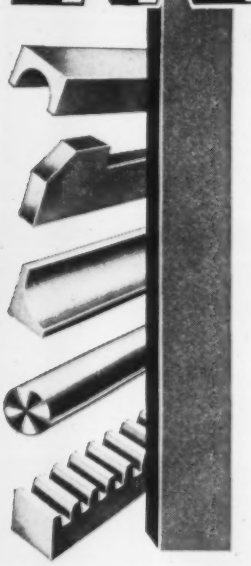

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5-1

BLASTRITE
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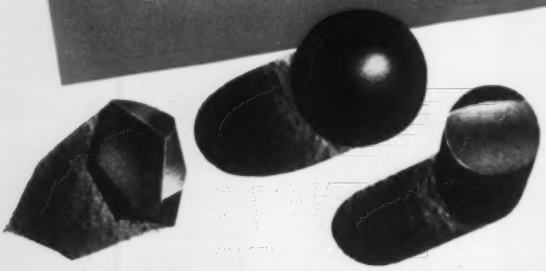

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A nearby Wheeling Distributor wants to serve you! Backed by years of experience in serving customers just like you, he always carries a well-rounded stock of Wheeling Steel Products so he can quickly and efficiently fill all of your needs for galvanized sheets and steel pipe.

Find out for yourself about all of the advantages you can gain by using Wheeling SOFTITE, Wheeling Galvanized Steel Pipe and the many services of your nearby Wheeling Distributor. If you're not already doing business with him, why not contact the nearest sales office listed below for his name and address. Or write to Wheeling Steel Corporation, Wheeling, W. Va. **IT'S WHEELING STEEL**

District Sales Offices: Atlanta, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Detroit, Houston, New York, Philadelphia, St. Louis, San Francisco, Wheeling

Steel Rate Advance Boosts Scrap

Three-point jump in ingot rate to 54.5 per cent reflected in higher prices on steelmaking grades of scrap. STEEL's composite goes up 67 cents to $33.50

Scrap Prices, Page 172

Chicago — Scrap prices continue their uptrend here. Most quotations advanced last week by $2 a ton. Brightening the market outlook, too, was the 4.5 point rise in the district steel operating rate—Inland Steel Co.'s estimated rate for the week is nearly 82 per cent of capacity, against 72 per cent in recent weeks.

With the exception of one mill, there has been little buying of scrap.

Philadelphia—Steel scrap prices are unchanged. Mill buying is slow. Most steelworks are taking in minimum tonnage and have light unfilled orders for heavy melting to be shipped. For export, about 4500 tons are being purchased for dock delivery, mostly within the Philadelphia port area. Export tonnage will be down in June. Heavy breakable cast is quoted off $1 at $40.

Pittsburgh — Improved steelmaking operations and scattered reports of mill buying have pushed premium grade scrap prices up about $1. Home scrap and blast furnaces are meeting the needs of the major mills. Until they come into the market, no big advances are expected.

Cleveland — Rising steelmaking operations serve to inject a note of strength into the local scrap market. The district ingot rate went up 4.5 points to 30.5 per cent of capacity. In the Valley the rate is holding at 45 per cent. Scrap interests anticipate some new buying in event the uptrend in steelmaking continues over the next few weeks. Meanwhile, limited sales of steel scrap at $37 in the Valley have pushed prices upward here.

Washington — The Institute of Scrap Iron & Steel Inc. is waging a fight at national and state levels for lower freight rates on scrap. Its transportation committee is pressing for an adjustment in rates which will make the increase granted by the Interstate Commerce Commision in February more equitable; or eliminate it entirely on intrastate shipments.

New York—With domestic buying and shipments low, steel scrap prices are unchanged here for the third straight week. No. 1 heavy melting, brokers' buying price, holds at $29-$30. Some buying for export is reported at unchanged prices. Foundries are buying only small lots of cast iron scrap. Stainless scrap volume is small.

Youngstown—Scrap remains dull here despite small increases in steel operations and a stiffening of the market elsewhere. Last sales of No. 1 heavy melting here were at $37. The mills hold substantial inventories. Several are using up to 65 per cent scrap in their furnace charges because of the low prices at which it can be bought.

Boston — No. 1 heavy melting steel and No. 2 bundles are slightly firmer, brokers paying $1 more a ton, shipping point. Slowest of the steel grades are borings and turnings, prices on which are nominal. Shipments to steelworks are at a low point and foundries are buying in small lots to support operations averaging no better than 50 per cent of capacity in gray iron.

Detroit—Although there's no mill buying, dealer trading is continuing to stimulate an uptrend in local scrap prices. Brokers are less optimistic than dealers. They talk

(*Please turn to Page* 177)

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INGOT MOLD PLUGS

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7. **EASIEST CLEANEST-DUMPING** . . . steel trays engineered to unload completely, with least effort.

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Iron and Steel Scrap

Consumer prices per gross ton, except as otherwise noted, including brokers' commission, as reported to STEEL, May 21, 1958. *Changes shown in italics.*

STEELMAKING SCRAP COMPOSITE

May 21	$33.50
May 14	32.83
Apr. Avg.	33.08
May 1957	45.75
May 1953	39.17

Based on No. 1 heavy melting grade at Pittsburgh, Chicago, and eastern Pennsylvania.

PITTSBURGH

No. 1 heavy melting	*32.00-33.00*
No. 2 heavy melting	*28.00-29.00*
No. 1 dealer bundles	*32.00-33.00*
No. 2 bundles	*25.00-26.00*
No. 1 busheling	*32.00-33.00*
No. 1 factory bundles	*37.00-38.00*
Machine shop turnings	13.00-14.00
Mixed borings, turnings	13.00-14.00
Short shovel turnings	17.00-18.00
Cast iron borings	17.00-18.00
Cut structurals:	
2 ft and under	37.00-38.00
3 ft lengths	35.00-36.00
Heavy turnings	28.00-29.00
Punchings & plate scrap	37.00-38.00
Electric furnace bundles	37.00-38.00

Cast Iron Grades

No. 1 cupola	40.00-41.00
Stove plate	40.00-41.00
Unstripped motor blocks	23.00-24.00
Clean auto cast	40.00-41.00
Drop broken machinery	48.00-49.00

Railroad Scrap

No. 1 R.R. heavy melt.	36.00-37.00
Rails, 2 ft and under	53.00-54.00
Rails, 18 in. and under	54.00-55.00
Random rails	50.00-51.00
Railroad specialties	43.00-44.00
Angles, splice bars	47.00-48.00
Rails, rerolling	55.00-56.00

Stainless Steel Scrap

18-8 bundles & solids	170.00-175.00
18-8 turnings	95.00-100.00
430 bundles & solids	95.00-100.00
430 turnings	50.00-52.00

CHICAGO

No. 1 hvy melt., indus.	*34.00-35.00*
No. 2 hvy melt., dealer	*32.00-33.00*
No. 2 heavy melting	*30.00-31.00*
No. 1 factory bundles	*38.00-39.00*
No. 1 dealer bundles	*33.00-34.00*
No. 2 bundles	*25.00-26.00*
No. 1 busheling, indus.	*34.00-35.00*
No. 1 busheling, dealer	*32.00-33.00*
Machine shop turnings	*17.00-18.00*
Mixed borings, turnings	*19.00-20.00*
Short shovel turnings	*19.00-20.00*
Cast iron borings	*19.00-20.00*
Cut structurals, 3 ft	*39.00-40.00*
Punchings & plate scrap	*40.00-41.00*

Cast Iron Grades

No. 1 cupola	*40.00-41.00*
Stove plate	*36.00-37.00*
Unstripped motor blocks	*32.00-33.00*
Clean auto cast	*45.00-46.00*
Drop broken machinery	*45.00-46.00*

Railroad Scrap

No. 1 R.R. heavy melt.	*36.00-37.00*
R.R. malleable	48.00-49.00
Rails, 2 ft and under	*49.00-50.00*
Rails, 18 in. and under	*50.00-51.00*
Angles, splice bars	*44.00-45.00*
Axles	*54.00-55.00*
Rails, rerolling	*51.00-52.00*

Stainless Steel Scrap

18-8 bundles & solids	160.00-165.00
18-8 turnings	85.00-95.00
430 bundles & solids	90.00-95.00
430 turnings	45.00-50.00

YOUNGSTOWN

No. 1 heavy melting	*36.00-37.00*
No. 2 heavy melting	22.00-23.00
No. 1 busheling	*36.00-37.00*
No. 1 bundles	*36.00-37.00*
No. 2 bundles	21.00-22.00
Machine shop turnings	9.00-10.00
Short shovel turnings	13.00-14.00
Cast iron borings	13.00-14.00
Low phos.	34.00-35.00
Electric furnace bundles	*37.00-38.00*

Railroad Scrap

No. 1 R.R. heavy melt.	35.00-36.00

CLEVELAND

No. 1 heavy melting	*32.50-33.50*
No. 2 heavy melting	19.00-20.00
No. 1 factory bundles	31.00-32.00
No. 1 bundles	*32.50-33.50*
No. 2 bundles	20.00-21.00
No. 1 busheling	*32.50-33.50*
Machine shop turnings	7.00-8.00
Short shovel turnings	11.00-12.00
Mixed borings, turnings	11.00-12.00
Cast iron borings	11.00-12.00
Cut foundry steel	34.00-35.00
Cut structurals, plates 2 ft and under	36.00-37.00
Low phos, punchings & plate	30.00-31.00
Alloy free, short shovel turnings	16.00-17.00
Electric furnace bundles	*33.50-34.50*

Cast Iron Grades

No. 1 cupola	42.00-43.00
Charging box cast	33.00-34.00
Heavy breakable cast	33.00-34.00
Stove plate	43.00-44.00
Unstripped motor blocks	25.00-26.00
Brake shoes	33.00-34.00
Clean auto cast	42.00-43.00
Burnt cast	30.00-31.00
Drop broken machinery	47.00-48.00

Railroad Scrap

R.R. malleable	60.00-61.00
Rails, 2 ft and under	56.00-57.00
Rails, 18 in. and under	57.00-58.00
Rails, random lengths	49.00-50.00
Cast steel	44.00-45.00
Railroad specialties	47.00-48.00
Uncut tires	40.00-41.00
Angles, splice bars	46.00-47.00
Rails, rerolling	51.00-52.00

Stainless Steel

(Brokers' buying prices; f.o.b. shipping point)

18-8 bundles, solids	160.00-165.00
18-8 turnings	90.00-95.00
430 clips, bundles, solids	75.00-80.00
430 turnings	40.00-50.00

ST. LOUIS

(Brokers' buying prices)

No. 1 heavy melting	32.00
No. 2 heavy melting	30.00
No. 1 bundles	32.00
No. 2 bundles	23.00
No. 1 busheling	32.00
Machine shop turnings	16.00
Short shovel turnings	18.00

Cast Iron Grades

No. 1 cupola	40.00
Charging box cast	33.00
Heavy breakable cast	33.00
Unstripped motor blocks	34.00
Clean auto cast	44.00
Stove plate	37.00

Railroad Scrap

No. 1 R.R. heavy melt.	*35.50*
Rails, 18 in. and under	48.00
Rails, random lengths	*44.00*
Rails, rerolling	*47.00*
Angles, splice bars	*45.00*

BIRMINGHAM

No. 1 heavy melting	30.00-31.00
No. 2 heavy melting	25.00-26.00
No. 1 bundles	30.00-31.00
No. 2 bundles	18.00-19.00
No. 1 busheling	30.00-31.00
Cast iron borings	12.00-13.00
Machine shop turnings	*21.00-22.00*
Short shovel turnings	*22.00-23.00*
Bar crops and plates	36.00-37.00
Structurals & plates	35.00-36.00
Electric furnace bundles	34.00-35.00
Electric furnace: 2 ft and under	33.00-34.00
3 ft and under	32.00-33.00

Cast Iron Grades

No. 1 cupola	48.00-49.00
Stove plate	48.00-49.00
Unstripped motor blocks	38.00-39.00
Charging box cast	22.00-23.00
No. 1 wheels	34.00-35.00

Railroad Scrap

No. 1 R.R. heavy melt.	32.00-33.00
Rails, 18 in. and under	46.00-47.00
Rails, rerolling	*46.00-47.00*
Rails, random lengths	*42.00-43.00*
Angles, splice bars	38.00-39.00

PHILADELPHIA

No. 1 heavy melting	34.00-35.00
No. 2 heavy melting	31.00
No. 1 bundles	34.00-35.00
No. 2 bundles	24.00
No. 1 busheling	34.00-35.00
Electric furnace bundles	36.00
Mixed borings, turnings	16.00†
Short shovel turnings	18.00
Machine shop turnings	15.00
Heavy turnings	29.00
Structural & plate	39.00-40.00
Couplers, springs, wheels	43.50
Rail crops, 2 ft & under	56.00-58.00

Cast Iron Grades

No. 1 cupola	38.00
Heavy breakable cast	*40.00*
Malleable	58.00-59.00
Drop broken machinery	47.00-48.00

NEW YORK

(Brokers' buying prices)

No. 1 heavy melting	29.00-30.00
No. 2 heavy melting	25.00-26.00
No. 1 bundles	29.00-30.00
No. 2 bundles	16.00-17.00
Machine shop turnings	8.00-9.00†
Mixed borings, turnings	9.00-10.00†
Short shovel turnings	11.00-12.00†
Low phos (structurals & plates)	32.00-33.00

Cast Iron Grades

No. 1 cupola	35.00-36.00
Unstripped motor blocks	24.00-25.00
Heavy breakable	33.00-34.00

Stainless Steel

18-8 sheets, clips, solids	135.00-140.00
18-8 borings, turnings	45.00-50.00
410 sheets, clips, solids	50.00-55.00
430 sheets, clips, solids	60.00-65.00

BUFFALO

No. 1 heavy melting	26.00-27.00
No. 2 heavy melting	22.00-23.00
No. 1 bundles	26.00-27.00
No. 2 bundles	20.00-21.00
No. 1 busheling	26.00-27.00
Mixed borings, turnings	13.00-14.00
Machine shop turnings	10.00-11.00
Short shovel turnings	14.00-15.00
Cast iron borings	13.00-14.00
Low phos. structurals and plate, 5 ft and under	31.00-32.00
2 ft and under	35.00-36.00

Cast Iron Grades

(F.o.b. shipping point)

No. 1 cupola	39.00-40.00
No. 1 machinery	43.00-44.00

Railroad Scrap

Rails, random lengths	45.00-46.00
Rails, 3 ft and under	51.00-52.00
Railroad specialties	35.00-36.00

CINCINNATI

(Brokers' buying prices; f.o.b. shipping point)

No. 1 heavy melting	29.00-30.00
No. 2 heavy melting	25.00-26.00
No. 1 bundles	29.00-30.00
No. 2 bundles	19.50-20.50
No. 1 busheling	29.00-30.00
Machine shop turnings	9.00-10.00
Mixed borings, turnings	9.00-10.00
Short shovel turnings	11.00-12.00
Cast iron borings	9.00-10.00
Low phos. 18 in.	36.00-37.00

Cast Iron Grades

No. 1 cupola	38.00-39.00
Heavy breakable cast	32.00-33.00
Charging box cast	32.00-33.00
Drop broken machinery	45.00-46.00

Railroad Scrap

No. 1 R.R. heavy melt.	*34.00-35.00*
Rails, 18 in. and under	52.00-53.00
Rails, random lengths	43.00-44.00

HOUSTON

(Brokers' buying prices; f.o.b. cars)

No. 1 heavy melting	29.00†
No. 2 heavy melting	27.00†
No. 2 bundles	19.00†
Machine shop turnings	12.00
Crushed turnings	16.00
Low phos. plates, structurals	35.00†

Cast Iron Grades

No. 1 cupola	34.50
Heavy breakable	30.00†
Unstripped motor blocks	33.50

Railroad Scrap

No. 1 R.R. heavy melt.	31.00†

BOSTON

(Brokers' buying prices; f.o.b. shipping point)

No. 1 heavy melting	*23.00-24.00*
No. 2 heavy melting	18.00-19.00
No. 1 bundles	22.00-23.00
No. 2 bundles	*14.00-15.00*
No. 1 busheling	23.00-24.00
Machine shop turnings	*4.00-5.00†*
Mixed borings, turnings	*4.00-5.00†*
Short shovel turnings	6.00-7.00†
No. 1 cast	28.00-29.00
Mixed cupola cast	27.00-28.00
No. 1 machinery cast	31.00-32.00

DETROIT

(Brokers' buying prices; f.o.b. shipping point)

No. 1 heavy melting	*24.00-25.00*
No. 2 heavy melting	*18.00-19.00*
No. 1 bundles	*25.00-26.00*
No. 2 bundles	*14.00-15.00*
No. 1 busheling	*24.00-25.00*
Machine shop turnings	5.00-6.00
Mixed borings, turnings	6.00-7.00
Short shovel turnings	7.00-8.00
Punchings & plate	*27.00-28.00*

Cast Iron Grades

No. 1 cupola	*31.00-32.00*
Stove plate	*26.00-27.00*
Charging box cast	*25.00-26.00*
Heavy breakable	*23.00-24.00*
Unstripped motor blocks	*15.00-16.00*
Clean auto cast	*33.00-34.00*

SEATTLE

No. 1 heavy melting	27.00†
No. 2 heavy melting	25.00†
No. 1 bundles	21.00†
No. 2 bundles	20.00†
Machine shop turnings	16.00
Mixed borings, turnings	16.00
Electric furnace No. 1	38.00

Cast Iron Grades

No. 1 cupola	31.00
Heavy breakable cast	28.00
Unstripped motor blocks	23.00
Stove plate (f.o.b. plant)	21.00

LOS ANGELES

No. 1 heavy melting	34.00
No. 2 heavy melting	32.00
No. 1 bundles	30.00
No. 2 bundles	22.00
Machine shop turnings	9.00
Shoveling turnings	11.00
Cast iron borings	11.00
Cut structurals and plate 1 ft and under	45.00

Cast Iron Grades

(F.o.b. shipping point)

No. 1 cupola	41.00

Railroad Scrap

No. 1 R.R. heavy melt.	34.00

SAN FRANCISCO

No. 1 heavy melting	32.00
No. 2 heavy melting	30.00
No. 1 bundles	30.00
No. 2 bundles	22.00
Machine shop turnings	15.00
Mixed borings, turnings	15.00
Cast iron borings	15.00
Heavy turnings	15.00
Short shovel turnings	15.00
Cut structurals, 3 ft	40.00

Cast Iron Grades

No. 1 cupola	42.00
Charging box cast	34.00
Stove plate	34.00
Heavy breakable cast	28.00
Unstripped motor blocks	31.00
Clean auto cast	40.00
Drop broken machinery	40.00
No. 1 wheels	34.00

HAMILTON, ONT.

No. 1 heavy melting	30.00
No. 2 heavy melting	26.00
No. 1 bundles	30.00
No. 2 bundles	23.00
Mixed steel scrap	25.00
Mixed borings, turnings	15.00
Busheling, new factory: Prepared	30.00
Unprepared	24.00
Short steel turnings	19.00

Cast Iron Grades‡

No. 1 machinery cast	45.00-50.00

†Nominal.
‡F.o.b. Hamilton, Ont.

LOGEMANN *presents*

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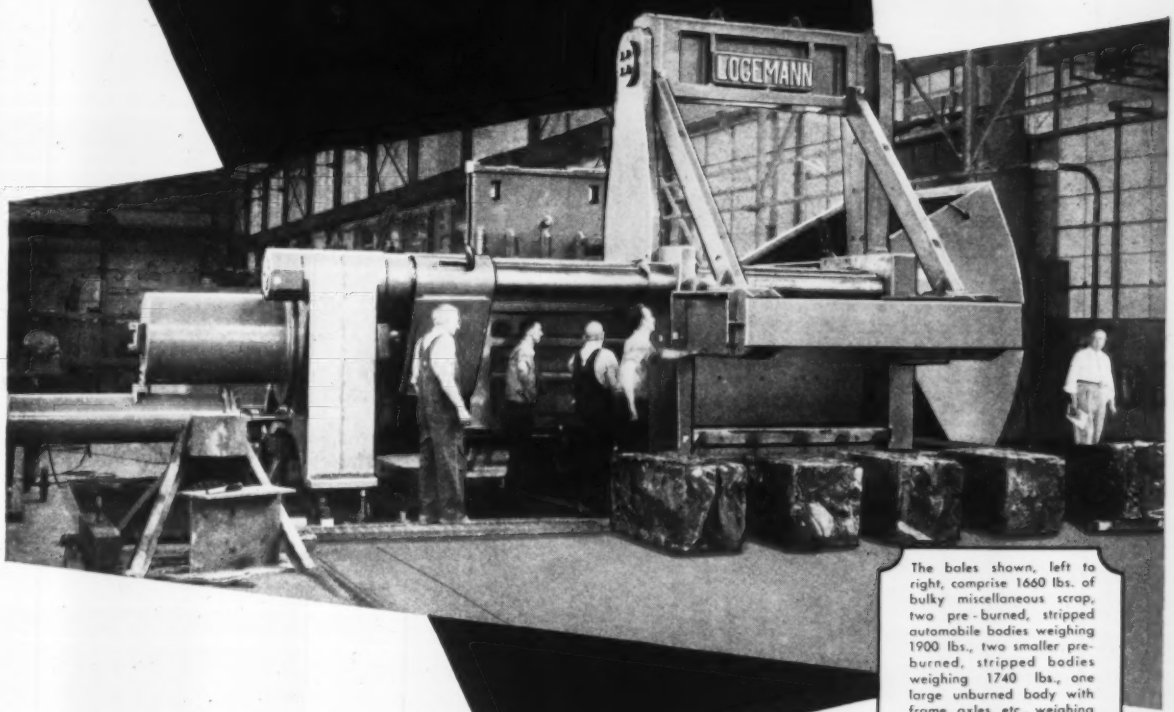
SCRAP PRESSES



The bales shown, left to right, comprise 1660 lbs. of bulky miscellaneous scrap, two pre-burned, stripped automobile bodies weighing 1900 lbs., two smaller pre-burned, stripped bodies weighing 1740 lbs., one large unburned body with frame, axles, etc., weighing 2280 lbs., and another unburned lighter body with frame, axles, etc., weighing 2020 lbs.

- **Bale Densities are Extremely High!**
- **Giant Press Box is 20 ft. x 7 ft. x 5 ft.**
- **Two 150 HP Pumps Generate Hydraulic Pressure**

In this Logemann Scrap Press compressed bales measure 24 inches by 24 inches by a variable third dimension which is determined by the character and quantity of scrap charged. The first or gathering ram compresses the load of scrap from 20 ft. to 2 ft. . . . the intermediate side ram reduces the cross-dimension from 7 ft to 2 ft. . . . finally the third or finishing ram moves upward, to compress the vertical dimension into an extremely dense bale, ready for remelting. The cover is then withdrawn and the finishing ram elevates the compressed bale level with the top of the box, to allow the cover to push it off for loading into cars.

Two large 150 HP pumps generate hydraulic pressure for operating the press-rams at high pressures. Three smaller pumps are used to operate the press cover and the loading hopper. This hopper can be filled with miscellaneous scrap while the press is making a bale, and then dumped quickly into the box as soon as the preceding bale has been discharged.

The large pumps give rapid movement to all rams, and to handle their fluid delivery the operating-valves are proportionately over-size. These valves are operated by compressed air and easily controlled from a remote stand, through a bank of electrical switches and push-buttons, in front of the operator.

This same press can be used for baling bodies and extremely bulky scrap, also for making standard size, high-density bales of new sheet clips.

We are prepared to build many smaller sizes or larger, if required, to meet your specific requirements. You are invited to present your problem for discussion.

Write for details about the newly developed 3500-P series with tamping cover and side bale ejection and the new giant double compression press with box 20 ft. long, 7½ ft. wide, and 5 ft. deep.

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Nickel Stocks Up

Industry's capacity is on the rise, but consumption is down. Result: Climbing inventories. Lead and zinc prices still vulnerable. Chuquicamata strike ends

Nonferrous Metal Prices, Pages 176 & 177

NICKEL production has outraced consumption this year, pushing stocks unusually high.

International Nickel Co. Inc. reports unsold stocks of nickel in North America (both in the hands of Inco and the U. S. government) were around 112 million lb on May 10 and are continuing to grow. It is estimated that customers held an additional 32 million lb in inventories on the same date. The total (144 million lb) "is the equivalent of over half the 1957 nickel consumption in North America," says Inco.

Demand Off — Inco estimates North American nickel consumption (civilian and defense) in the first half of this year is running at an annual rate of 170 million to 180 million lb, compared with a 1957 consumption rate of 251 million lb. Free World consumption during the first half is pegged at an annual rate of 340 million to 360 million lb, a drop from the 1957 figure of 412 million lb.

The business dip is generally blamed for nickel's present woes. Consumer stocks were extremely high at the beginning of the recession. Many observers believe that has compounded the trouble.

Too Much—Free World production capacity is estimated at around 525 million lb this year, compared with 489 million lb in 1957. Output won't be that great, though, since Inco is operating at around 60 million lb under capacity.

Watch for Free World capacity to spiral: 550 million lb in 1959, 600 million lb in 1960, 650 million lb in 1961.

Lead, Zinc Vulnerable

Sales of both metals continue at a plodding pace. Zinc consumption in April was off 25 per cent from last year; lead was down 20 per cent.

For the first time in years, domestic smelters are turning out enough of both metals to satisfy U. S. demand.

Imports of foreign origin metal selling at well under the domestic quotation were what caused U. S. lead producers to lower their price to 11.5 cents a pound on May 14. There's still a differential of 0.25 to 0.5 cent a pound between U. S. and foreign lead.

Source: Copper Institute

Zinc, too, is unstable at its price of 10 cents a pound. Foreign metal is being offered in the U. S. at around 1 cent a pound under the domestic price. Further weakening on the London Metal Exchange could cause price cuts in both metals.

Aluminum Output Down

Production of primary aluminum fell a little in April and cut the total for the first four months to 531,918 tons, slightly under the 540,947 tons registered in the year-ago period, reports the Aluminum Association.

End use statistics for 1957 just released by the association show 22.3 per cent of all wrought products were shipped to the building industry, compared with 19.2 per cent in 1956. Other industries that increased their percentage of the market include electrical and containers and packaging. The second biggest user, transportation, dropped to 15.8 per cent of the market from 18.6 per cent in 1956.

Copper Figures Gloomy

Domestic production of refined copper fell by about 10,000 tons in April, but this didn't keep stocks from climbing (see chart). Deliveries to fabricators rose a little to 81,344 tons.

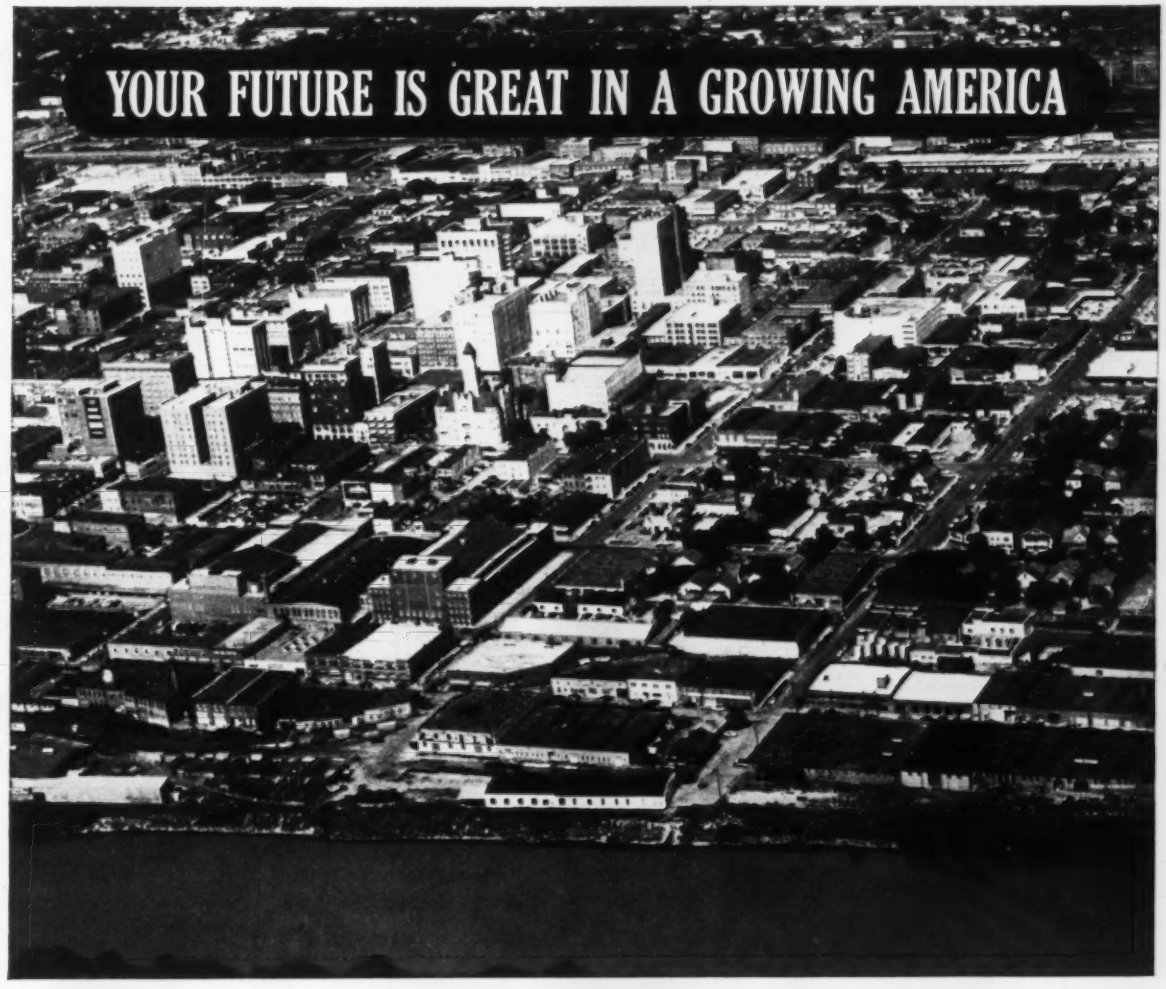
Both foreign production and deliveries dropped, mainly as the result of the strike at Anaconda Co.'s Chuquicamata, Chile, mine, say metalmen. The 51-day strike ended last week, but not before it cost Anaconda around 35,000 to 40,000 tons in lost production.

Domestic sales are spotty for primary producers. Custom smelters continue to do a fairly good volume of business at 23.75 cents a pound.

NONFERROUS PRICE RECORD

	Price May 21	Last Change	Previous Price	Apr. Avg	Mar. Avg	May, 1957 Avg
Aluminum	24.00	Apr. 1, 1958	26.00	24.000	26.000	25.000
Copper	23.75–25.00	Apr. 24, 1958	23.50–25.00	24.323	24.163	31.087
Lead	11.30	May 14, 1958	11.80	11.800	12.800	15.185
Magnesium	35.25	Aug. 13, 1956	33.75	35.250	35.250	35.250
Nickel	74.00	Dec. 6, 1956	64.50	74.000	74.000	74.000
Tin	94.375	May 21, 1958	94.50	93.021	93.425	98.341
Zinc	10.00	July 1, 1957	10.50	10.000	10.000	13.500

Quotations in cents per pound based on: COPPER, mean of primary and secondary, deld. Conn. Valley; LEAD, common grade, deld. St. Louis; ZINC, prime western, E. St. Louis; TIN, Straits, deld. New York; NICKEL, electrolytic cathodes, 99.9%, base size at refinery, unpacked; ALUMINUM, primary pig, 99.5+%, f.o.b. shipping point; MAGNESIUM, pig, 99.8%, Velasco, Tex.



THE CITY THAT DIDN'T EXIST A MONTH AGO

Every 30 days the U. S. adds as many new Americans as live in Norfolk, Va.—creating brand-new wants and needs which must be satisfied.

What does this mean to you? It means greater opportunities than ever before—in all fields. Home construction is expected to double by 1975. Power companies plan to increase output 250% in the next 20 years to provide the power for scores of new labor-saving devices. Clothing suppliers predict a one-third increase in 7 years.

With 11,000 new citizen-consumers born every day, there's a new wave of opportunity coming.

7 BIG REASONS FOR CONFIDENCE IN AMERICA'S FUTURE

1. **More people** . . . Four million babies yearly. U. S. population has *doubled* in last 50 years! And our prosperity curve has always followed our population curve.
2. **More jobs** . . . Though employment in some areas has fallen off, there are *15 million* more jobs than in 1939—and there will be *22 million more* in 1975 than today.
3. **More income** . . . Family income after taxes is at an all-time high of $5300—is expected to pass $7000 by 1975.
4. **More production** . . . U. S. production *doubles* every 20 years. We will require millions more people to make, sell and distribute our products.
5. **More savings** . . . Individual savings are at highest level ever—*$340 billion*—a record amount available for spending.
6. **More research** . . . *$10 billion* spent each year will pay off in more jobs, better living, whole new industries.
7. **More needs** . . . In the next few years we will need *$500 billion* worth of schools, highways, homes, durable equipment. Meeting these needs will create new opportunities for everyone.

Add them up and you have the makings of another big upswing. Wise planners, builders and buyers will act *now* to get ready for it.

FREE! Send for this new 24-page illustrated booklet, "Your Great Future in a Growing America." Every American should know these facts. Drop a card today to: ADVERTISING COUNCIL, Box 10, Midtown Station, New York 18, N. Y.

(This space contributed as a public service by this magazine.)

Nonferrous Metals

Cents per pound, carlots except as otherwise noted.

PRIMARY METALS AND ALLOYS

Aluminum: 99.5%, pigs, 24.00; ingots, 26.10, 10,000 lb or more, f.o.b. shipping point. Freight allowed on 500 lb or more.

Aluminum Alloy: No. 13, 27.90; No. 43, 27.70; No. 195, 28.70; No. 214, 29.50; No. 356, 27.90, 30-lb ingots.

Antimony: R.M.M. brand, 99.5%, 29.00; Lone Star brand, 29.50, f.o.b. Laredo, Tex., in bulk. Foreign brands, 99.5%, 23.50-24.50, New York, duty paid, 10,000 lb or more.

Beryllium: 97% lump or beads, $71.50 per lb, f.o.b. Cleveland or Reading, Pa.

Beryllium Aluminum: 5% Be, $74.75 per lb of contained Be, with balance as Al at market price, f.o.b. shipping point.

Beryllium Copper: 3.75-4.25% Be, $43 per lb of contained Be, with balance as Cu at market price on shipment date, f.o.b. shipping point.

Bismuth: $2.25 per ton, ton lots.

Cadmium: Sticks and bars, $1.55 per lb deld.

Cobalt: 97-99%, $2.00 per lb for 550-lb keg; $2.02 per lb for 100 lb case; $2.07 per lb under 100 lb.

Columbium: Powder, $55-90 per lb, nom.

Copper: Electrolytic, 25.00 deld.; custom smelters, 23.75; lake, 25.00 deld.; fire refined, 24.75 deld.

Germanium: First reduction, $179.17-197.31 per lb; intrinsic grade, $197.31-220 per lb, depending on quantity.

Gold: U. S. Treasury, $35 per oz.

Indium: 99.9%, $2.25 per troy oz.

Iridium: $70-80 nom. per troy oz.

Lead: Common, 11.30; chemical, 11.40; corroding, 11.40, St. Louis, New York basis, add 0.20.

Lithium: 98 + %, 50-100 lb, cups or ingots, $12; rod, $15; shot or wire, $16. 100-500 lb, cups or ingots, $10.50; rod, $14; shot or wire $15, f.o.b. Minneapolis.

Magnesium: Pig, 35.25; ingot, 36.00 f.o.b. Velasco, Tex.; 12 in. thick, 59.00 f.o.b. Madison, Ill.

Magnesium Alloys: AZ91A (diecasting), 40.75 deld.; AZ63A, AZ92A, AZ91C (sand casting), 40.75, f.o.b. Velasco, Tex.

Mercury: Open market, spot, New York, $228-230 per 76-lb flask.

Molybdenum: Unalloyed, turned extrusions, 3.75-5.75 in. round, $9.60 per lb in lots of 2500 lb or more, f.o.b. Detroit.

Nickel: Electrolytic cathodes, sheets (4 x 4 in. and larger), unpacked, 74.00; 10-lb pigs, unpacked, 78.25; "XX" nickel shot, 779.50; "F" nickel shot for addition to cast iron, 74.50; "F" nickel, 5 lb ingots in kegs for addition to cast iron, 75.50. Prices f.o.b. Port Colborne, Ont., including import duty. New York basis, add 1.01. Nickel oxide sinter, 71.25 per lb of nickel content before 1 cent freight allowance, f.o.b. Copper Cliff, Ont.

Osmium: $70-100 per troy oz nom.

Palladium: $19-21 per troy oz.

Platinum: $64-70 per troy oz from refineries.

Radium: $16-21.50 per mg radium content, depending on quantity.

Rhodium: $118-125 per troy oz.

Ruthenium: $45-55 per troy oz.

Selenium: $7.00 per lb, commercial grade.

Silver: Open market 88.625 per troy oz.

Sodium: 16.50, c.l.; 17.00 l.c.l.

Tantalum: Rod, $60 per lb; sheet, $55 per lb.

Tellurium: $1.65-1.85 per lb.

Thallium: $7.50 per lb.

Tin: Straits, N. Y., spot and prompt, 94.375.

Titanium: Sponge, 99.3+% grade A-1 ductile (0.3% Fe max.), 2.05; grade A-2 (0.5% Fe max.), $1.85 per lb.

Tungsten: Powder, 98.8%, carbon reduced, 1000-lb lots, $3.15 per lb nom., f.o.b. shipping point; less than 1000 lb, add 15.00; 99+% hydrogen reduced, $3.85.

Zinc: Prime Western, 10.00; brass special, 10.25; intermediate, 10.50, East St. Louis, freight allowed over 0.50 per lb, New York basis, add 0.50. High grade, 11.00; special high grade, 11.25 deld. Diecasting alloy ingot No. 3, 13.75; No. 2, 14.75; No. 5, 14.25 deld.

Zirconium: Sponge, commercial grade, $5-10 per lb.

(Note: Chromium, manganese, and silicon metals are listed in ferroalloy section.)

SECONDARY METALS AND ALLOYS

Aluminum Ingot: Piston alloys, 24.00-24.50; No. 12 foundry alloy (No. 2 grade), 21.25-21.50; 5% silicon alloy, 0.60 Cu max., 24.00-24.25; 13 alloy 0.60 Cu max., 24.00-24.25; 195 alloy, 24.25-25.50; 108 alloy, 21.75. Steel deoxidizing grades, notch bars, granulated or shot: Grade 1, 22.75; grade 2, 21.25; grade 3, 20.00; grade 4, 17.25.

Brass Ingot: Red brass, No. 115, 25.25; tin bronze, No. 225, 34.00, No. 245, 28.75; high-leaded tin bronze, No. 305, 29.25, No. 1 yellow, No. 405, 20.75; manganese bronze, No. 421, 23.00.

Magnesium Alloy Ingot: AZ63A, 37.50; AZ91B, 37.50; AZ91C, 41.25; AZ92A, 37.50.

NONFERROUS PRODUCTS

BERYLLIUM COPPER

(Base prices per lb, plus mill extras, 2000 to 5000 lb; nom. 1.9% Be alloy.) Strip, $1.80, f.o.b. Temple, Pa., or Reading, Pa.; rod, bar, wire, $1.78, f.o.b. Temple, Pa.

COPPER WIRE

Bare, soft, f.o.b. eastern mills, 30,000-lb lots, 30.355; l.c.l., 30.98. Weatherproof, 30,000-lb lots, 32.53; l.c.l., 33.28. Magnet wire deld., 38.43, before quantity discounts.

LEAD

(Prices to jobbers, f.o.b. Buffalo, Cleveland, Pittsburgh.) Sheets, full rolls, 140 sq ft or more, $17.00 per cwt; pipe, full coils, $17.00 per cwt; traps and bends, list prices plus 30%.

TITANIUM

(Prices per lb, 10,000 lb and over, f.o.b. mill.) Sheets and strip, $8.50-15.95; sheared mill plate, $6.00-9.50; wire, $6.50-11.00; forging billets, $4.10-4.35; hot-rolled and forged bars, $5.25-6.35.

ZINC

(Prices per lb, c.l., f.o.b. mill.) Sheets, $24.00; plate, $12.50-19.20; H.R. strip, $12.50-22.90; $11.00-17.40.

ZIRCONIUM

C.R. strip, $15.90-31.25; forged or H.R. bars, ribbon zinc in coils, 20.50; plates, 19.00.

NICKEL, MONEL, INCONEL

	"A" Nickel	Monel	Inconel
Sheets, C.R.	126	106	128
Strips, C.R.	124	108	138
Plate, H.R.	120	105	121
Rod, Shapes, H.R.	107	89	109
Seamless Tubes	157	129	200

ALUMINUM

Sheets: 1100, 3003, and 5005 mill finish (30,000 lb base; freight allowed).

Thickness Range, Inches	Flat Sheet	Coiled Sheet
0.249-0.136	41.10-45.60	.....
0.135-0.096	41.60-46.70	.....
0.125-0.096	.....	38.50-39.10
0.095-0.077	42.30-48.50	38.60-39.30
0.076-0.061	42.90-50.80	38.80-40.00
0.060-0.048	43.60-53.10	39.40-41.10
0.047-0.038	44.20-55.90	39.90-32.50
0.037-0.030	44.60-60.90	40.30-44.30
0.029-0.024	45.20-52.70	40.60-45.00
0.023-0.019	46.20-56.10	41.70-43.40
0.018-0.017	47.00-53.40	42.30-44.00
0.016-0.015	47.90-54.30	43.10-44.80
0.014	48.90	44.10-45.80
0.013-0.012	50.10	44.80
0.011	51.10	46.00
0.010-0.0095	52.60	47.40
0.009-0.0085	53.90	48.90
0.008-0.0075	55.50	50.10
0.007	57.00	51.60
0.006	58.60	53.00

ALUMINUM (continued)

Plates and Circles: Thickness 0.250-3 in., 24-60 in. width or diam., 72-240 in. lengths.

Alloy	Plate Base	Circle Base
1100-F, 3003-F	41.70	46.50
5050-F	42.80	47.60
3004-F	43.80	49.50
5052-F	44.40	50.20
6061-T6	44.90	51.00
2024-T4	48.60	55.40
7075-T6*	56.40	64.00

*24-48 in. width or diam., 72-180 in. lengths.

Screw Machine Stock: 30,000 lb base.

Diam. (in.) or across flats	Round 2011-T3	Round 2017-T4	Hexagonal 2011-T3	Hexagonal 2017-T-4
Drawn				
0.125	76.20	73.20	....	....
0.156	64.20	61.40	....	....
0.172	....	61.40	....	....
0.188	64.20	61.40	....	79.60
0.203	64.20	61.40	....	....
0.219-0.234	61.00	59.50	....	....
0.250	61.00	59.50	88.40	75.90
0.266-0.281	61.00	59.50	....	....
0.313	61.00	59.50	81.40	72.20
0.344	60.50	....	81.40	....
Cold-Finished				
0.375-0.547	60.50	59.30	72.80	67.80
0.563-0.688	60.50	59.30	69.10	63.50
0.719	....	57.70	....	....
0.750-1.000	59.00	57.70	62.90	59.70
1.063	59.00	57.70	....	57.60
1.250-1.500	56.60	55.40	60.80	57.60
Rolled				
1.563	55.00	53.70	....	....
1.625-2.000	54.30	52.90	59.60	55.50
2.063	....	51.40	....	....
2.125-2.500	52.80	51.40	....	55.50
2.500-3.000	51.20	49.70	....	55.50
3.250-3.375	....	49.70	....	....

Forging Stock: Round, Class 1, random lengths, diam. 0.688-8 in., "F" temper: 2014, 41.50-54.30; 6061, 40.90-54.30; 7075, 42.90-56.30; 7079, 43.40-56.80.

Pipe: ASA schedule 40, alloy 6063-T6, standard lengths, plain ends, 99,000-lb base, per 100 ft.

Nom. Pipe Size (in.)		Nom. Pipe Size (in.)	
¾	$18.60	2	$ 57.40
1	29.35	4	157.60
1¼	39.75	6	282.95
1½	47.50	8	425.80

Extruded Solid Shapes:

Factor	Alloy 6063-T5	Alloy 6062-T6
9-11	45.40-47.00	58.60-62.80
12-14	45.70-47.20	59.30-63.80
15-17	45.90-47.90	60.50-65.50
18-20	46.50-48.30	62.50-68.10

MAGNESIUM

Sheet and Plate: AZ31B standard grade, 0.32 in., 103.10; .081 in., 77.90; .125 in., 70.40; .188 in., 69.00; .250-2.0 in., 67.90. AZ31B spec. grade, .032 in., 171.30; .081 in., 108.70; .125 in., 98.10; .188 in., 95.70; .250-2.00 in., 93.30. Tread plate, 60-192 in. lengths, 24-72 in. widths; .125 in., 74.90; .188 in., 71.70-72.70; .25-.75 in., 70.60-71.60. Tooling plate, .25-3.0 in., 73.00.

Extruded Solid Shapes:

Factor	Com. Grade (AZ31C)	Spec. Grade (AZ31B)
6-8	69.60-72.40	84.60-87.40
12-14	70.70-73.00	85.70-88.00
24-26	75.60-76.30	90.60-91.30
36-38	89.20-90.30	104.20-105.30

NONFERROUS SCRAP

DEALER'S BUYING PRICES

(Cents per pound, New York, in ton lots.)

Aluminum: 1100 clippings, 12.00-12.50; old sheets, 9.00-9.50; borings and turnings, 8.00-

BRASS MILL PRICES

	MILL PRODUCTS a				SCRAP ALLOWANCES f	
	Sheet, Strip, Plate	Rod	Wire	Seamless Tubes	Clean Heavy	Rod Ends	Clean Turnings
Copper	48.13b	45.36c	....	48.32	21.000	21.000	20.250
Yellow Brass	42.69	29.53d	43.23	45.60	16.125	15.875	14.500
Low Brass, 80%	44.90	44.84	45.44	47.71	17.875	17.625	17.125
Red Brass, 85%	45.67	45.61	46.21	48.48	18.625	18.375	17.875
Com. Bronze, 90%	46.98	46.92	47.52	49.54	19.250	19.000	18.500
Manganese Bronze	50.81	44.91	55.44	....	14.875	14.625	14.125
Muntz Metal	45.19	41.00	....	....	15.125	14.875	14.375
Naval Brass	47.07	41.38	54.13	50.48	14.875	14.625	14.125
Silicon Bronze	52.84	52.03	52.88	54.77	20.625	20.375	19.625
Nickel Silver, 10%	57.93	60.26	60.26	....	21.125	20.875	10.562
Phos. Bronze, A-5%	67.17	67.67	67.67	68.85	21.875	21.625	20.625

a. Cents per lb, f.o.b. mill; freight allowed on 500 lb or more. b. Hot-rolled. c. Cold-drawn. d. Free cutting. e. Prices in cents per lb for less than 20,000 lb, f.o.b. shipping point. On lots over 20,000 lb at one time, or any or all kinds of scrap, add 1 cent per lb.

5.50; crankcase, 9.00-9.50; industrial castings, 9.00-9.50.

Copper and Brass: No. 1 heavy copper and wire, 18.00-18.50; No. 2 heavy copper and wire, 16.00-16.50; light copper, 14.00-14.50; No. 1 composition red brass, 15.00-15.50; No. 1 composition turnings, 14.00-14.50; new brass clippings, 13.00-13.50; light brass, 8.50-9.00; heavy yellow brass, 10.50-11.00; new brass rod ends, 11.00-11.50; auto radiators, unsweated, 11.00-11.50; cocks and faucets, 12.50-13.00; brass pipe, 12.50-13.00.

Lead: Heavy, 6.75-7.00; battery plates, 2.50-2.75; linotype and stereotype, 9.25-9.75; electrotype, 8.50-9.00; mixed babbitt, 9.75-10.25.

Monel: Clippings, 28.00-29.00; old sheets, 25.00-26.00; turnings, 20.00-23.00; rods, 28.00-29.00.

Nickel: Sheets and clips, 42.00-45.00; rolled anodes, 42.00-45.00; turnings, 37.00-40.00; rod ends, 42.00-45.00.

Zinc: Old zinc, 3.00-3.25; new diecast scrap, 2.75-3.00; old diecast scrap, 1.50-1.75.

REFINERS' BUYING PRICES

(Cents per pound, carlots, delivered refinery)

Aluminum: 1100 clippings, 15.50-16.25; 3003 clippings, 15.50-16.25; 6151 clippings, 15.50-16.50; 5052 clippings, 15.00-15.75; 2014 clippings, 15.00-15.25; 2017 clippings, 15.00-15.25; 2024 clippings, 15.00-15.25; mixed clippings, 14.00-14.75; old sheets, 11.50-12.25; old cast, 11.50-12.25; clean old cable (free of steel), 14.25-15.25; borings and turnings, 12.00-13.00.

Beryllium Copper: Heavy scrap, 0.020-in. and heavier, not less than 1.5% Be, 51.00; light scrap, 46.00; turnings and borings, 31.00.

Copper and Brass: No. 1 heavy copper and wire, 20.00; No. 2 heavy copper and wire, 18.25; light copper, 16.00; refinery brass (60% copper) per dry copper content, 17.75.

INGOTMAKERS' BUYING PRICES

Copper and Brass: No. 1 heavy copper and wire, 20.00; No. 2 heavy copper and wire, 18.25; light copper, 16.00; No. 1 composition borings, 17.50; No. 1 composition solids, 18.00; heavy yellow brass solids, 12.50; yellow brass turnings, 11.50; radiators, 14.00.

PLATING MATERIALS

(F.o.b. shipping point, freight allowed on quantities)

ANODES

Cadmium: Special or patented shapes, $1.70.
Copper: Flat-rolled, 41.79; oval, 49.00, 5000-10,000 lb; electrodeposited, 31.25, 2000-5000 lb lots; cast, 36.25, 5000-10,000 lb quantities.

Nickel: Depolarized, less than 100 lb, 114.25; 100-499 lb, 112.00; 500-4999 lb, 107.50; 5000-29,999 lb, 105.25; 30,000 lb, 103.00. Carbonized, deduct 3 cents a lb.

Tin: Bar or slab, less than 200 lb, 113.50; 200-499 lb, 112.00; 500-999 lb, 111.50; 1000 lb or more, 111.00.

Zinc: Balls, 16.00; flat tops, 16.00; flats, 19.25; ovals, 18.50, ton lots.

CHEMICALS

Cadmium Oxide: $1.70 per lb in 100-lb drums.
Chromic Acid: 100 lb, 33.30; 500 lb, 32.80; 200 lb, 32.15; 5000 lb, 31.80; 10,000 lb, 31.30; f.o.b. Detroit.

Copper Cyanide: 100-200 lb, 68.40; 300-900 lb, 66.40; 1000-19,900 lb, 64.40.
Copper Sulphate: 100-1900 lb, 13.70; 2000-5900 lb, 11.70; 6000-11,900 lb, 11.45; 12,000-22,900 lb, 11.20; 23,000 lb or more, 10.70.

Nickel Chloride: 100 lb, 48.50; 200 lb, 46.50; 300 lb, 45.50; 400-999 lb, 43.50; 10,000 lb or more, 40.50.

Nickel Sulphate: 5000-22,000 lb, 33.50; 23,000-35,900 lb, 33.00; 36,000 lb or more, 32.50.
Sodium Cyanide: 100 lb, 27.60; 200 lb, 25.90; 400 lb, 22.90; 1000 lb, 21.90; f.o.b. Detroit.

Sodium Stannate: Less than 100 lb, 75.80; 100-600 lb, 66.80; 700-1900 lb, 64.00; 2000-9900 lb, 62.20; 10,000 lb or more, 60.80.

Stannous Chloride (anhydrous): Less than 25 lb, 165.30; 25 lb, 130.30; 100 lb, 115.30; 400 lb, 112.90; 5200-19,600 lb, 100.70; 20,000 lb or more, 88.50.

Stannous Sulphate: Less than 50 lb, 128.10; 50 lb, 98.10; 100-1900 lb, 96.10; 2000 lb or more, 94.10.

Zinc Cyanide: 100-200 lb, 59.00; 300-900 lb, 57.00.

(Concluded from Page 171)

about a slow summer and anticipate no action until the mills start cleaning out present inventories.

The dealers think the worst of the scrap slump is over, and that prices will hold on a steady level for the next few months. A slight price increase is expected on auto lists this week. Foundry grades are reflecting dealer optimism.

Buffalo — With steel production creeping up here, the tone of the local scrap market is improving. Most dealers think prices have hit bottom and that the next move will be on the up side. The firmer market tone has not yet resulted in any new buying. But higher prices at Youngstown are luring industrial material from this district, and this may bring an upward revision in local quotations.

District steel mills are holding sizable inventories. So they are in good position to bargain for new tonnage. Foundries are showing a little more interest in scrap.

Cincinnati — Despite continued absence of a buying test, the scrap market tone is firmer here. Traders anticipate an increase in prices next month, based on the rising trend in district steelmaking operations.

St. Louis—The scrap market undertone is firmer, but prices are unchanged. The strength is based on advancing prices in outside markets, such as Chicago and Peoria, Ill. The two large mills here show some interest in buying, but decline to pay the higher prices asked. Many dealers are holding their scrap for an expected price boost. There has been some minor trading in railroad heavy melting and bundles. Railroad specialties are up $1 a ton.

Birmingham—Most major steel scrap consumers here filled their needs early this month, and they are now out of the market. Cast iron is moving satisfactorily, but export demand for that grade is absent. One large cast buyer last week altered his specifications to purchase No. 1 agricultural and machinery cast free of automotive cast. For this special grade, he is paying $51, delivered plant.

Houston—Leading scrap consumers in the Southwest are out of the market. Twenty cars of heavy melting railroad scrap were successfully bid for a Mexican mill at $36.30 delivered to the border at Laredo. The bid of a Texas mill was considerably less.

Not much scrap is coming out. Shippers have no unfilled commitments. Gulf Coast export activity is nil.

Except for cast iron, prices are nominal. Some foundry buying of clean cast and unstripped motor blocks is noted.

San Francisco—Steel ingot production is increasing in this area—one district plant is engaged at 85 per cent of capacity. Scrap inventories are going down, but there is no strength in the scrap market, and expectations are that prices on the top grades will fall lower.

Los Angeles—Some foundries are buying limited amounts of scrap, but the steel mills are still depending on inventories for the bulk of their requirements. With significant demand lacking, the market undertone appears weaker.

CLASSIFIED

Help Wanted

PROCESS METALLURGIST
Exceptional opportunity available for Metallurgical Engineer with administrative experience in development and production of Flat Rolled Electrical Steels. Send resume of education, experience and availability to Box No. 666, STEEL, Penton Bldg., Cleveland 13, Ohio.

Representatives Wanted

SALES REPRESENTATIVE
Nationally known Tungsten Carbide Manufacturer of Tungsten Carbide and Chrome Carbide Dies, Tools and Wear Parts. Has opening for sales representative in Midwest & West. Reply Box 665, STEEL, Penton Bldg., Cleveland 13, Ohio.

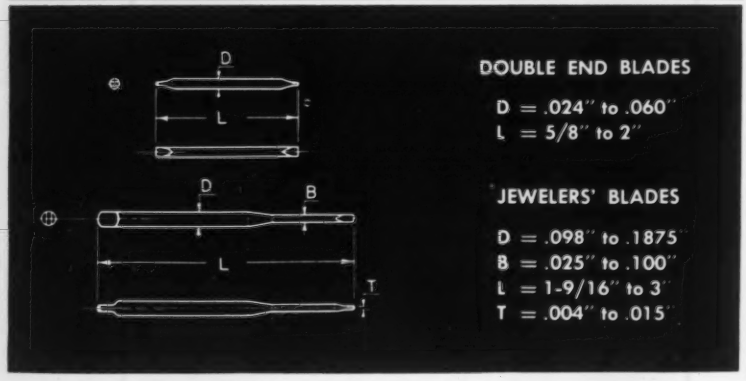
Positions Wanted

OPPORTUNITY WANTED
I offer successful top-level (15 years Vice President) foundry and manufacturing experience in finance, sales, purchasing, engineering, labor, production; capable, personable, graduate engineer; good organizer. I seek broad management responsibility, good potential income; willing to invest. Write Box 667, STEEL, Penton Bldg., Cleveland 13, Ohio.

ESTABLISHED SALES REPRESENTATIVE, Cleveland District, desires representation of steel foundry or allied line on commission basis. Have following. Reply Box 668, STEEL, Penton Bldg., Cleveland 13, Ohio.

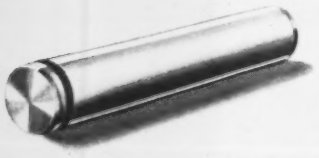
CLASSIFIED RATES
All classifications other than "Positions Wanted" set solid, 50 words or less $15.00, each additional word .30; all capitals, 50 words or less $19.20, each additional word .38; all capitals leaded, 50 words or less $23.40, each additional word .47. "Positions Wanted" set solid, 25 words or less $3.60, each additional word .14, all capitals, 25 words or less $4.50, each additional word .18; all capital leaded, 25 words or less $5.40, each additional word .22. Keyed address takes seven words. Cash with order necessary on "Positions Wanted" advertisements. Replies forwarded without charge. Displayed classified rates on request. Address your copy and instructions to STEEL, Penton Building, Cleveland 13, Ohio.

NEWS
from Torrington on
SMALL PRECISION METAL PARTS



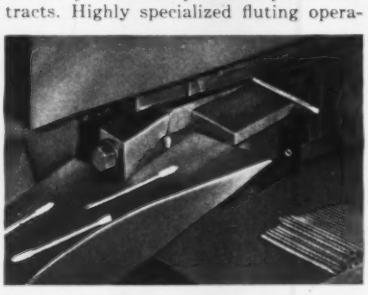
"Custom manufacture" has a special meaning at Torrington, where our Specialties Division produces a tremendous variety of small precision metal parts. For our engineers often help in designing parts for our customers, and as frequently develop special equipment or methods for most efficient production.

For example, one of our current contracts is for jewelers' screwdriver blades. In this case, our engineers decided to swage these parts to give the required high-strength characteristics without stress concentration points and tool marks. Other features of these parts are good dimensional accuracy and closely controlled heat treating for hardness and temper.



In another case, we received a blueprint of a special pinion axle with an accurately cut retaining ring groove at one end. The customer inquired whether this part could be produced at about the same price as a straight cylindrical axle with an uninterrupted OD. The answer was "Yes!" Specialties engineers decided that high-speed cutoff and groove-turning equipment would have to be built to cope with the high volume involved. Special pinion axles have now joined the great number of parts being produced by Torrington Specialties Division.

Whatever the part, whatever the operation—even operations tailored to the part requirements—Torrington's Specialties Division is uniquely equipped to handle your small precision parts contracts. Highly specialized fluting operations, for example, permit volume production to close tolerances. Precision swaging, knurling, forming, milling, drilling are among other operations for which we are fully equipped. Advanced heat treat and statistical quality control methods help provide the quality product you require.



For help with your custom-built small precision metal parts in large quantities, just circle our number on the reply card. Or have your Purchasing Agent call our area salesman, or write direct to:

The Torrington Company, Specialties Division, 900 Field Street, Torrington, Conn.

TORRINGTON SPECIAL METAL PARTS

Makers of Torrington Needle Bearings

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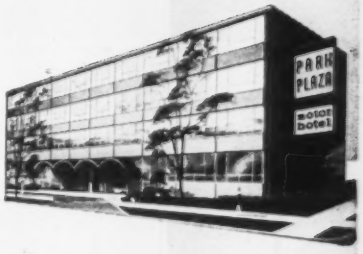
you enjoy both hotel comforts, motel conveniences

only at the new...

Park Plaza
MOTOR HOTEL



LOCATED DOWNTOWN . . .
ACROSS FROM THE
MASONIC TEMPLE

Detroit's finest air-conditioned rooms and suites with television and telephones • 24 hour switchboard • Kitchenettes • Valet, laundry and room service • Restaurant • No tipping • On-site free parking and drive-in registry • Moderate rates • Family plan . . . plus many other hotel comforts, motel conveniences.

PARK PLAZA MOTOR HOTEL

2560 Second Avenue at Cass Park
Detroit 1, Michigan
WOodward 2-9877 TWX DE 1133

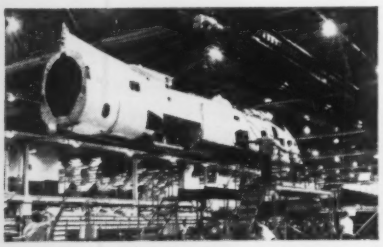
With top speed a secret, the U. S. Navy's Chance Vought F8U-1 Crusader was the first aircraft to span the continent faster than the speed of sound. Now flying with Fleet squadrons on both the Atlantic and Pacific coasts, the F8U-1 operates in a new speed range far beyond the supersonic. President Eisenhower, aboard the Saratoga when one of the epic transcontinental flights landed, observed: "You almost got here before you left."

In the photo above, Tuffy Slings are being used in hoisting the plane. 18,829 lbs. of valuable aircraft are entrusted to the quality, strength and dependability of Tuffy Slings. We think it's a fine testimonial to the kind of slings and wire rope you get when you use Tuffy.

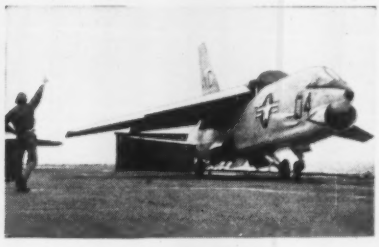
Tuffy Slings give you more sling efficiency and longer life because Tuffy's patented machine-braided fabric is the perfectly balanced combination of strength and flexibility. Their flexibility is such as to resist kinking. When kinks do occur, they are easily straightened without material damage. And the exclusive Tuffy pressed-on ferrule makes the eye-splice as strong as the fabric. For every sling need and any sling problem, get in touch with your Tuffy distributor.

Write today for your copy of
FREE TUFFY SLING HANDBOOK
Full sling data and specifications plus complete rigger's handbook.

union Wire Rope corporation
SUBSIDIARY ARMCO STEEL CORPORATION
2160 Manchester Ave. **Kansas City 26, Missouri**
Specialists in high carbon wire, wire rope, braided wire fabric, stress relieved wire and strand.

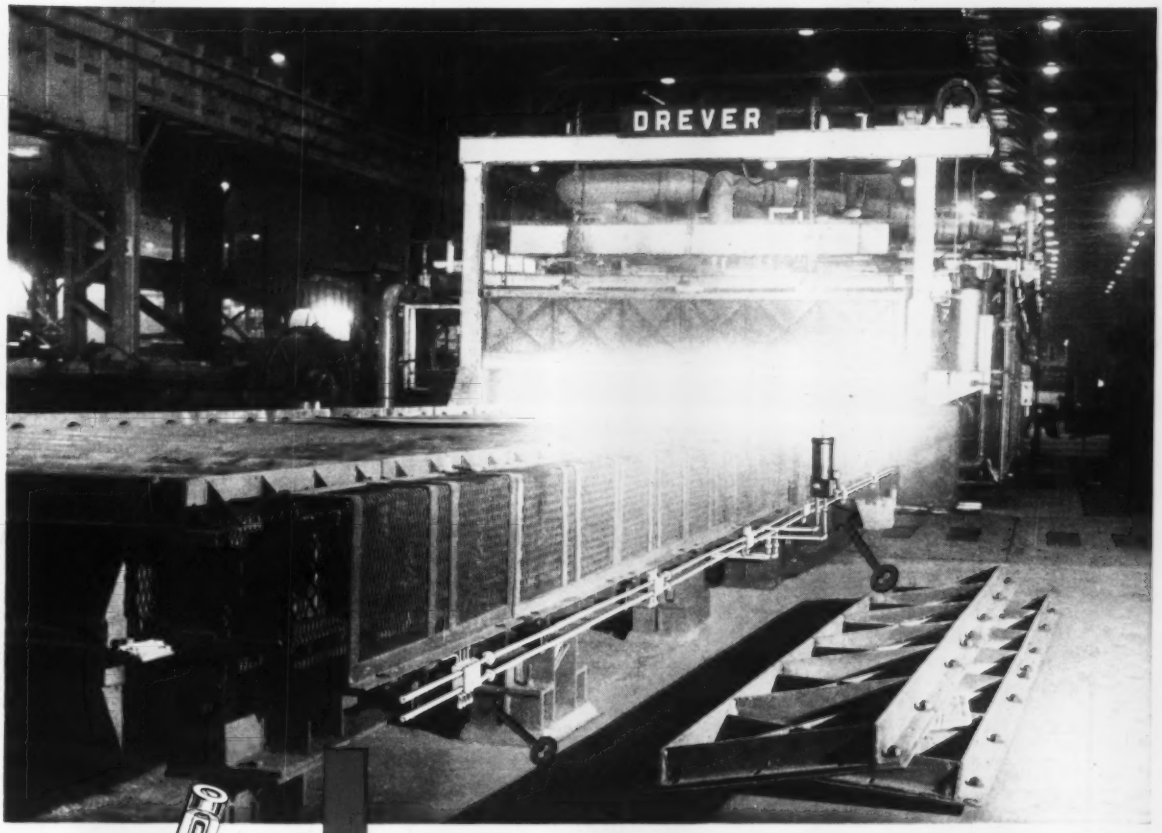


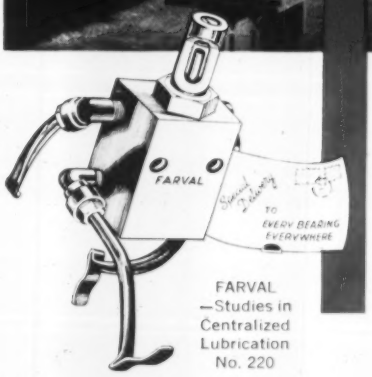
Tuffy Slings play a vital part in both production and operation of the Navy's F8U-1. Here the fuselage is suspended on a Tuffy sling assembly as it moves on the production line.



Tuffy is in the act again as the F8U-1 is set to catapult. Union Wire Rope also manufactures catapult slings used on U. S. Navy aircraft carriers.

The F8U-1, landing on carrier deck, is about to catch arresting cables such as Union Wire Rope Corporation also makes for the Navy. The plane in this operation weighs more than 12 tons!





FARVAL
—Studies in
Centralized
Lubrication
No. 220

Farval system provides continuous, precision lubrication for huge heat-treat furnace

A MODERN Farval centralized lubrication system guards against premature bearing failure on both the approach and delivery tables of this huge, new 135-foot-long Drever continuous heat treating furnace now in operation at United States Steel's 160-inch plate mill. Its function is to harden armor plate, USS T-1 alloy and stainless steels—up to 45 feet long, 13 feet wide by 2 inches thick.

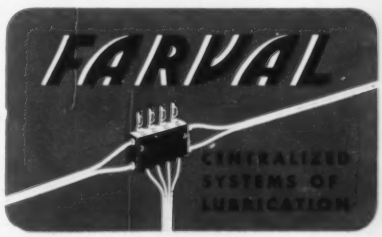
Farval's fool-proof Dualine system delivers just the right amount of clean lubricant to every bearing at regular intervals—from a safely located central station.

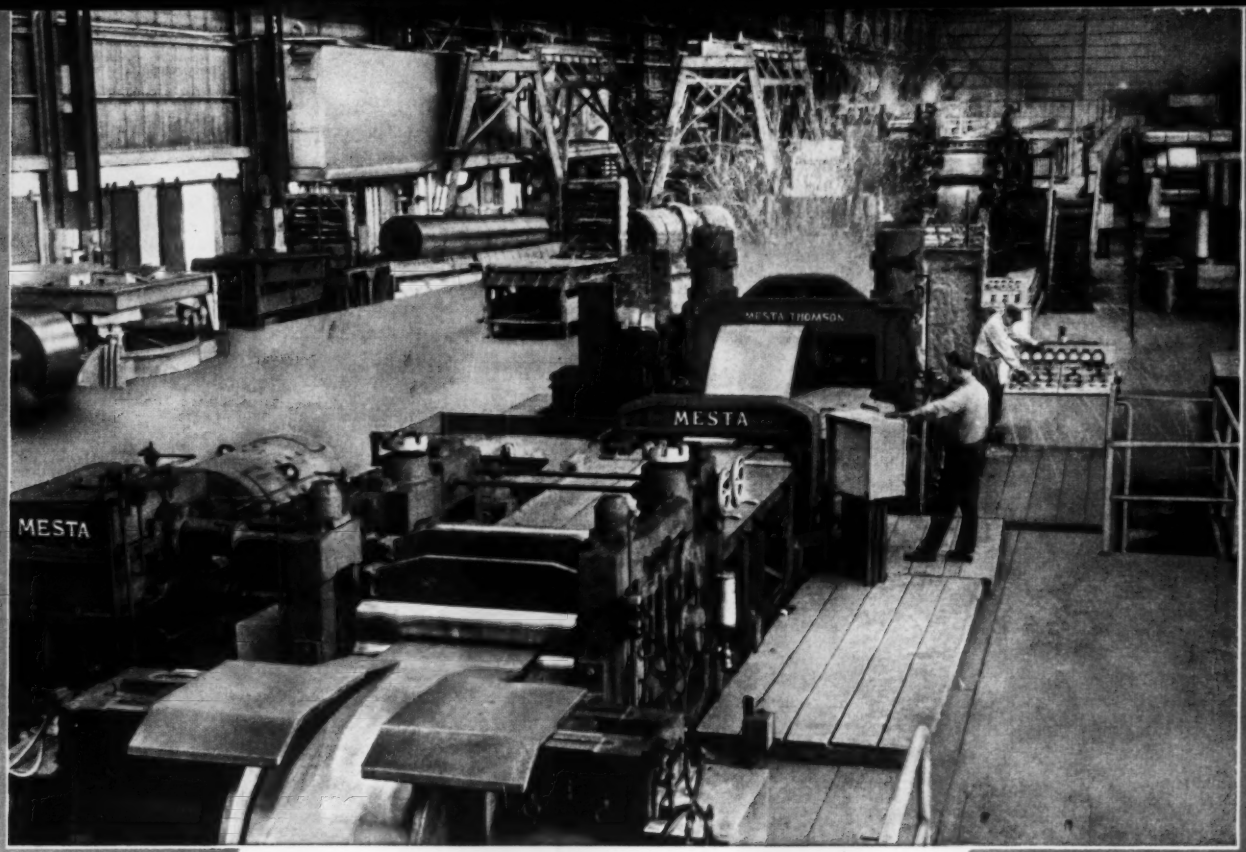
If you desire, we will have one of our specialists show how Farval centralized lubrication systems can save production hours, maintenance and labor in your own plant. Write today for revised Bulletin 26-S—it tells the complete Farval story. The Farval Corporation, 3270 East 80th Street, Cleveland 4, Ohio.

Affiliate of The Cleveland Worm & Gear Company, Industrial Worm Gearing. In Canada: Peacock Brothers Limited.

KEYS TO ADEQUATE LUBRICATION

—wherever you see the sign of Farval—familiar valve manifolds, dual lubricant lines and central pumping station—you know industrial equipment, such as this heat-treat furnace entry table, is being properly lubricated.

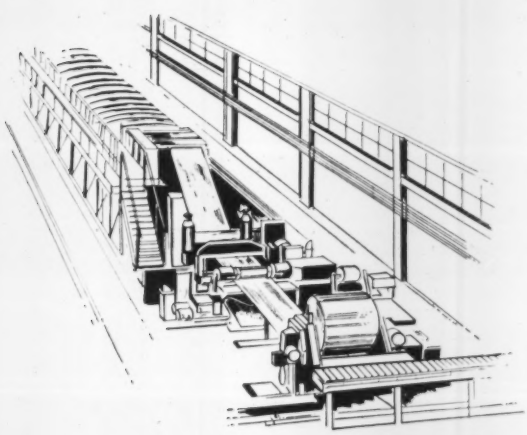




MESTA 48" Continuous Pickling Line with Primary and Secondary Processors, Flash Welder, Up-Cut Shears, Side Trimmer and Up-Coiler.

Continuous PICKLING LINES

DESIGNED AND BUILT BY MESTA



Designers and Builders of Complete Steel Plants

MESTA MACHINE COMPANY

PITTSBURGH, PENNSYLVANIA